



Grasshoppers (Orthoptera, Acrididae & Pyrgomorphidae) of Ghyalchok, Gorkha, Nepal and four new species records

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ABSTRACT. We present a list of grasshoppers of two families from Ghyalchok, Gorkha district with four new species records for Nepal. The checklist of species is given to provide basic information on the grasshopper diversity of that region. With detailed information of all species recorded and plates with photos from different angles of each species, the present work shall contribute towards a better understanding of grasshoppers of Nepal's Ghyalchok, Gorkha region. This study contributes to future revisionary works on grasshopper diversity and distribution in Nepal. We surveyed 13 different localities of Ghyalchok for three years from 2019–2022, following visual count, while the specimens were collected by using a sweep net or by handpicking where feasible. We recorded 29 species of grasshoppers, of which 26 species belong to Acrididae and 3 species to Pyrgomorphidae. Four grasshopper species, *Phlaeoba antennata antennata* Brunner von Wattenwyl, 1893; *Bibracte burmana burmana* Ramme, 1941; *Caryanda cachara* (Kirby, 1914) and *Gonista bicolor* (Haan, 1942) are recorded for the first time from Nepal.

Key words: Caelifera, checklist, distribution, Gandaki, Himalayas, subtropics, taxonomy

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INTRODUCTION

Nepal is a biodiversity rich country, representing the major parts of the Himalayas (ICIMOD, 2007). The country is known for its rich biodiversity owing to the wide altitudinal gradient and its peculiar location at the intersection of the Palaearctic and Palaeotropical biogeographic realms (Udvardy, 1975). However, the documentation of grasshoppers is still in a primitive state owing to the lack of work and taxonomists involved. The checklist on Nepali Orthoptera prepared by Ingrisch (2006) is the sole work to include all the groups of Orthopteran insects. Ingrisch (2006) reported 311 species of Orthoptera from Nepal. Recently, Pudasaini & Dhital (2022) reviewed the Acrididae fauna of Nepal based on work previously done and reported a total of 69 species in the family. Moreover, there have been some additions, *Sanaa regalis* (Brunner von Wattenwyl, 1895) (KC & Sapkota, 2022), *Skejotettix netrajyoti* Subedi, 2022 (Subedi, 2022), *Aryalidonta itishreea* (Subedi & Kasalo, 2023), *Skejotettix kasalo* (Subedi, 2023). So, the number provided does not reflect the full number of species; there still is a need for extended research to enhance the knowledge of the grasshopper fauna of Nepal and the distribution and ecological requirement of the species concerned.

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Ghyalchok is a village located in the southern part of the Gorkha district in Nepal. This region has a subtropical climate with hot-humid summers and cold-dry winters. This area has a variety of habitats: extending from the banks of the Trishuli river through the agricultural fields and subtropical forests along with some freshwater streams supporting various life forms. Tetrigids are the only studied groups of grasshoppers from Ghyalchok (Subedi, 2022; Subedi & Kasalo, 2023) with two genera native to the area. However, there has been no documentation of other Orthoptera families. In this regard, the study aims to present the grasshoppers (Acrididae and Pyrgomorphidae) of Ghyalchok along with new records of four species from the Himalayan nation of Nepal.

MATERIAL AND METHODS

Different localities from Ghyalchok, Gorkha (Table 1, Fig. 1) were surveyed on a regular basis in different seasons (spring, summer, monsoon, and winter) from 2019 to 2022. The number of grasshoppers observed was noted, and a few individuals of each species were collected with the help of a sweep net or by hand picking where feasible for morphological studies. Some adults and nymphs were reared in 1L plastic jars. The specimens were killed in an ethyl acetate killing jar, pinned instantly with entomological pins (size #4, #5), labeled, and stored in the insect collection boxes of ICAG (Insects' Collection of Agriculture Science Center, Ghyalchok, Gorkha, Nepal) and DEAFU (Department of Entomology, Agriculture and Forestry University, Rampur, Ch., Nepal). Likewise, information on the localities, including the GPS coordinates, elevation, habitat type and vegetation was also noted. The morphology of the species was studied with the help of original descriptions mentioned alongside the species in the text. Further, the specimens were compared with the images of type species (taken by DB in his study from 2016–2019) deposited in Natural History Museum, London, U.K. (BMNH); the Muséum National d'Histoire Naturelle, and Paris, France (MNHN); Museo Nacional de Ciencias Naturales, Madrid, Spain (MNCN); Muséum d'histoire naturelle, Geneva, Switzerland (MHNG). Taxonomy follows the international database of Orthoptera, the Orthoptera Species File (further in text abbreviated as OSF) (Cigliano et al., 2023), and the nomenclature is in accordance with the 4th edition of the International Code of the Zoological Nomenclature (ICZN, 1999). A field camera, Canon Eos 80D, attached with a Canon macro lens 100 mm 1:2.8 USM, was used for photographing the species in the natural habitat and in the insect collection.

Table 1. Localities surveyed in Ghyalchok with coordinates, elevation, habitat type and Figures.

Localities	Coordinates	Elevation (± 5 m.a.s.l)	Habitat type	Figure
ASC, Ghyalchok	27.80830°N, 84.71896°E	460	Office area with agricultural fields	1A
Mukhin danda	27.80918°N, 84.71919°E	470	Fallow fields with Cogon grass	1B
Churlingtar	27.80894°N, 84.72426°E	510	Agricultural fields	1C
Dadabari	27.80914°N, 84.72100°E	490	Agricultural fields	1D
Forest near ASC	27.80526°N, 84.72662°E	455	Subtropical Sal forest	1E
Forest near Judi khola	27.80734°N, 84.72893°E	450	Subtropical forest	1F
Judi khola	27.81622°N, 84.72376°E	550	Freshwater stream	1I
Jyamireghat	27.80227°N, 84.71346°E	320	Agricultural fields	1M
Kapani khola periphery	27.80945°N, 84.72020°E	470	Agricultural fields and forest around a freshwater stream	1G
Maranghat	27.80366°N, 84.71711°E	310	River bank	1H
Shree Netrajyoti Basic School	27.80817°N, 84.71966°E	465	School area with open ground amidst subtropical Sal forest	1J; 1K
Tinbhangale	27.80280°N, 84.70870°E	310	River bank	1L
Gandaki RM ward no 7 office periphery	27.80679°N, 84.72547°E	460	Open ground with sparse grasses	1N



Figure 1. Investigated localities from Ghyalchok, Gorkha, Nepal. **A.** Agriculture Science Center, Ghyalchok; **B.** Mukhin danda; **C.** Churlingtar; **D.** Dandabari; **E.** Forest near ASC, Ghyalchok; **F.** Forest near Judi khola; **G.** Kapani khola peripheri; **H.** Maranghat; **I.** Judikhola; **J.** Shree Netrajyoti Basic School; **K.** Forest adjacent to Shree Netrajyoti Basic School; **L.** Tinbhangle; **M.** Jyamireghat; **N.** Gandaki RM ward no. 7 periphery.

The photographs from the habitats were taken using a mobile camera (Xiaomi Redmi Note 9). Photographs were slightly processed and cropped into a single plate. The abbreviations in the distribution record denotes the districts, and stand as, **Ba.:** Bajhang; **Bh.:** Bhaktapur; **Bn.:** Banke; **Br.:** Bara; **Ch.:** Chitwan; **Da.:** Dailekh; **Dh.:** Dhading; **Dn.:** Dhankuta; **Do.:** Dolakha; **Dr.:** Darchula; **Hu.:** Humla; **Il.:** Ilam; **Jh.:** Jhapa; **Ju.:** Jumla; **Ka.:** Kathmandu; **Kl.:** Kalikot; **Kp.:** Kanchanpur; **Ks.:** Kaski; **Kv.:** Kavrepalanchok; **La.:** Lalitpur; **Lm.:** Lamjung; **Ma.:** Makwanpur; **Mn.:** Manang; **Mu.:** Mustang; **My.:** Myagdi; **Pa.:** Parbat; **Ra.:** Rasuwa; **Rm.:** Ramechhap; **Sa.:** Sankhuwasabha; **Si.:** Sindhupalchok; **So.:** Solukhumbu; **Ta.:** Tanahun; **Tp.:** Taplejung.

RESULTS

Taxonomic hierarchy

Superfamily group Acridomorpha

Superfamily Acridoidea MacLeay, 1821

Family Acrididae MacLeay, 1821

Subfamily Acridinae MacLeay, 1821

Genus *Sikkimiana* Uvarov, 1940

Sikkimiana darjeelingensis (Bolívar, 1914) (Fig. 2)

New records. 10♂, 10♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Judi khola; 27.81622°N, 84.72376°E; 550 ± 5 m a.s.l.; Nov. 2021; M. Subedi leg.; Freshwater stream banks; ICAG (1♂, 1♀).

Distribution in Nepal. Forest North of Thuloswanra, Ks.; Madi khola, Namarjung valley, Ks. (Ingrisch, 1987), Bhaise Dobhan, Ma. (Ingrisch, 1990), Betrawati to Pairebeshi, Ra.; Diyale, Ra.; Sherpakharka, Ra. (Ingrisch & Garai, 2001), Syapru Besi to Bharkhu, Ra.; Dana, My.; Ghorepani, My.; Kathmandu to Pokhara, Mowa Khola, Dh.; Lamobagar, Sa.; Tashigaun to Seduwa, Sa. (Ingrisch, 2006).

Note. The localities, Madikhola, Thuloswanra, Pairebeshi, Syapru Besi, Bharkhu, Ghorepani and Seduwa are spelt respectively as Modi khola, Tholuswanra, Paidobesi, Syabru Bensi, Barkhu, Ghorapani, and Sedua in the respective original texts. The localities Ghorepani and Mowa Khola are mentioned to be under Ks. and Lm. districts in the respective original texts.

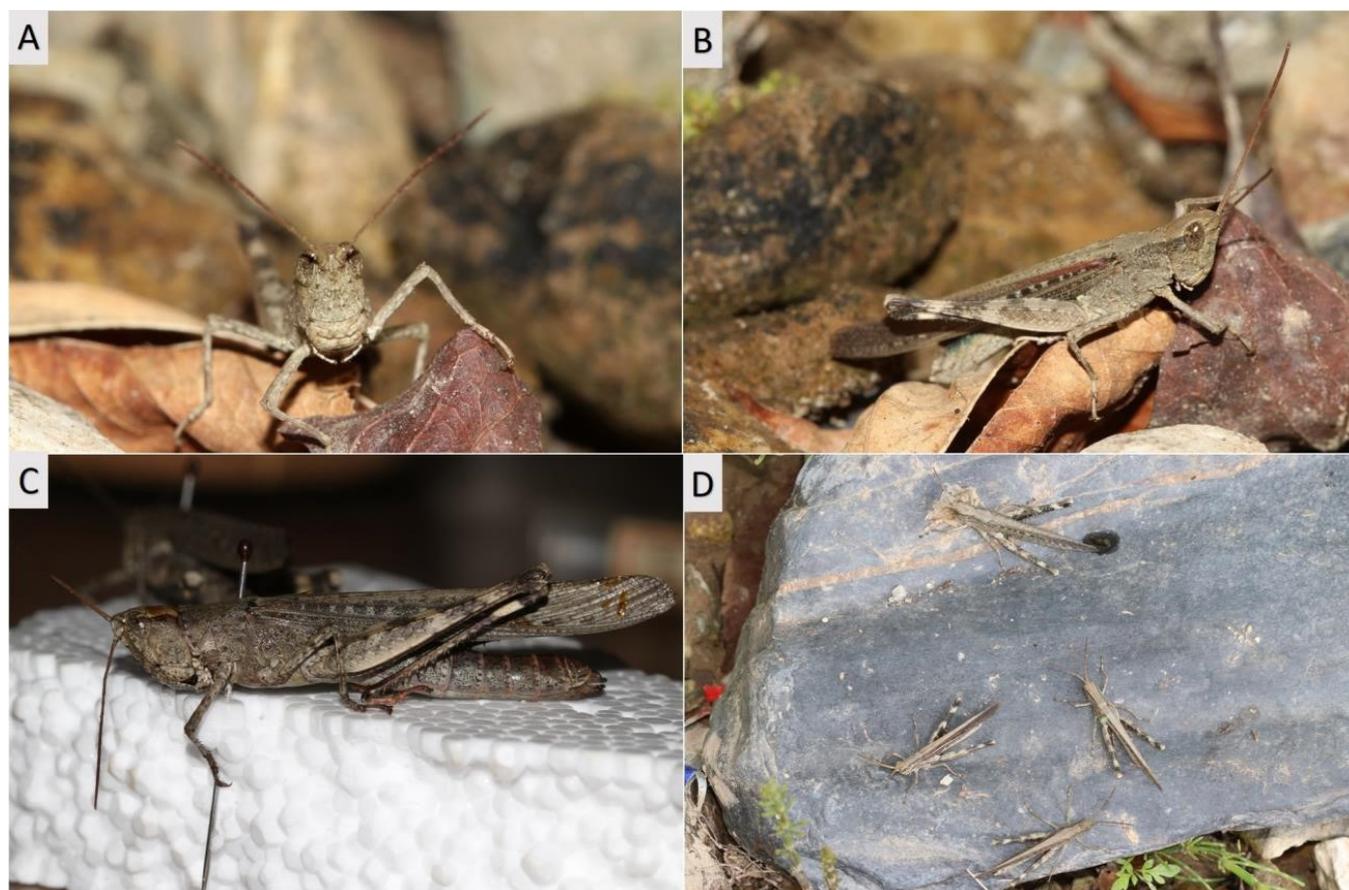


Figure 2. *Sikkimiana darjeelingensis*. A–B. Male; C. Female; D. A group of the individuals resting on a stone.

Tribe Acridini MacLeay, 1821

Genus *Acrida* Linnaeus, 1758

Acrida exaltata (Walker, 1859) (Fig. 3)

New records. 10♂, 12♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Near ward no. 7 office; 27.80679°N, 84.72547°E; 460 ± 5 m a.s.l.; Apr.–Aug. 2021; M. Subedi leg.; Open ground with sparse grasses; ICAG (1♂, 1♀).

Distribution in Nepal. Tamor river bridge, Dn.; Lawari, Tp.; Lelep, Tp.; Tapethok, Tp. (Chopard & Dreux, 1966), Maga Deurali to Kirantichhap, Do.; Changma Deurali to Jiri, Do.; Namdu, Do.; Kabre to Kirantichhap to Charange Khola, Do.; Chaubas, Kv. (Bey-Bienko, 1968), Dumre to Turture, Ta.; Turture, Ta. to Phaleksangu, Lm.; near Nagarkot, Bh.; Godawari, La. (Balderson & Yin, 1987), Eastern Pokhara, Ks.; Modi khola, Thak valley, Ks.; Chisankhu, Lm.; Mugling Bazar, Ch. (Ingrisch, 1987), Chhauni, Ka.; Godawari, La.; Banepa, Kv.; Pharphing, Ka.; Sunkoshi valley, south of Bahrabise, Si.; Manahari khola, Beluwa, Ma.; Bhaise Dobhan, Ma.; Nawalpur, Si.; Rapti valley around 20 miles west of Hetauda, Ma.; Bhimphedi, Ma.; Chaubas, Kv. (Ingrisch, 1990), Betrawati to Pairebeshi, Ra.; Pairebeshi, Ra.; Diyale, Ra.; Mailungkhola, Ra. (Ingrisch & Garai, 2001) Gokarna Forest Park, Ka.; NE Bagmati River, near Gokarna Forest Park, Ka.; N Bagmati River, Ka.; Safari Park wall, Ka.; NW Gokarna Forest Park, Bagmati River, Ka.; NW Kathmandu., Ka.; Sauraha, Rapti river, Ch.; Ganna to Latinath, Dr.; Mahendranagar near Daijee, Chaudhara river, Kp.; Shimar, Ba. to Makarigad, Dr. (Ingrisch, 2006).

Note. Banepa, Maga Deurali, Kirantichhap, Charange Khola, Chaubas, Bahrabise, Manahari Khola, Beluwa, Hetauda, Chaubas, Pairebeshi, Gokarna Forest Park, Ganna, Daijee, Chaudhara river, and Makarigad are spelt respectively as Barepa, Manga Deaurali, Kirantichap, Zarangje Khola, Chyaubas, Brhbise, Monhari Khola, Belwa, Hitaura, Tschianbas, Paidobesi, Gorkhana Park, Ghamna, Daiji, Chaudara river, and Makaringhar in the respective original texts. The localities of Ka. district are mentioned under the La. district in Ingrisch (2006).

Notes on variability. Two color forms are seen in this species: (i) green with longitudinal white stripes along the body (Fig. 3C) (ii) completely green in color (Fig. 3D).

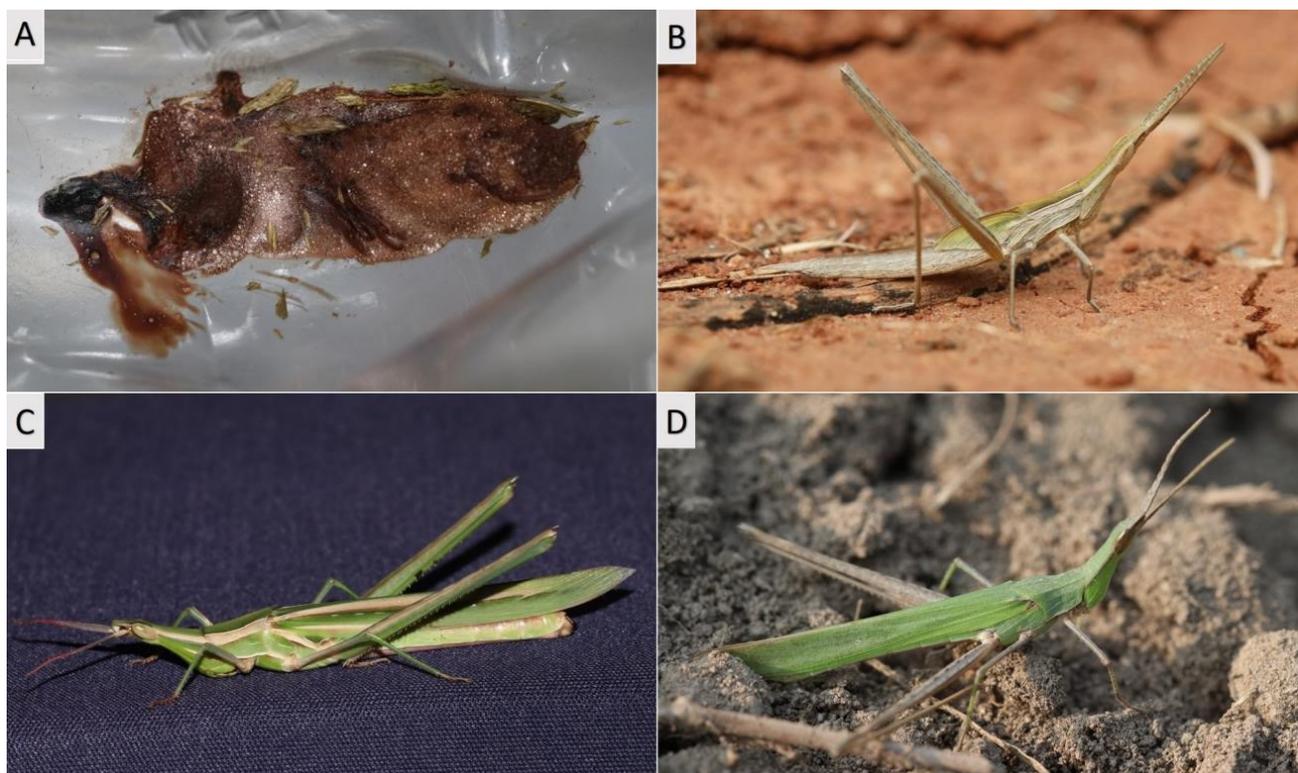


Figure 3. *Acrida exaltata*. **A.** Egg pod; **B.** Nymph in the wild; **C–D.** Females of different color forms.

Tribe Phlaeobini Brunner von Wattenwyl, 1893

Genus *Phlaeoba* Stål, 1861

Phlaeoba antennata antennata Brunner von Wattenwyl, 1893* (Fig. 4)

New records. 13♂, 14♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, subtropical Sal forest 50 meters northwest of Shree Netrajyoti Basic School; 27.80854°N, 84.71920°E; 465 ± 5 m a.s.l.; Jun.–Dec. 2020; M. Subedi leg.; Subtropical Sal forest; ICAG (1♂, 1♀) | 5♂, 4♀; Nepal, Bagmati Province, Ch. district, Bharatpur Metropolitan city, Rampur; 27.64528°N, 84.35056°E; 260 ± 5 m a.s.l.; Jun.–Oct. 2019; M. Subedi leg.; Agricultural fields, DEAFU (1♂, 1♀).

General distribution. India, Myanmar, Thailand, Vietnam, Singapore, Malaysia (Cigliano et al., 2023).

Note. This species was first discovered from Rampur, Ch. and later from Ghyalchok, Gorkha. The distribution record from Ch. is included here, as this is the first record of the species for Nepal.

Diagnosis. Lateral carina distinct; Antennae with yellowish tip; Hind tibia sordid blue or reddish; Male sub-genital plate with obtuse end.

Phlaeoba infumata Brunner von Wattenwyl, 1893 (Fig. 5)

New records. 20♂, 20♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Mukhin danda; 27.80918°N, 84.71919°E; 470 ± 5 m a.s.l.; Mar.–Dec. 2021; M. Subedi leg.; Fallow fields with Cogon grass; ICAG (1♂, 1♀) | 16♂, 18♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Bhattar, near Agriculture Science Center; 27.80526°N, 84.72662°E; 455 ± 5 m a.s.l.; Mar.–Dec. 2022; M. Subedi leg.; Subtropical Sal forest.

Distribution in Nepal. Tamor river bridge, Dn.; Yenuwa, Tp.; Lelep, Tp.; Tellok, Tp. (Chopard & Dreux, 1966), Namdu, Do. (Bey-Bienko, 1968), Forest North of Thuloswanra, Ks.; Jugedi, Ch. (Ingrisch, 1987), Chhauni, Ka.; Manahari khola, Beluwa, Ma. (Ingrisch, 1990), Kathmandu, Ka.; Betrawati to Pairebeshi, Ra.; Diyale, Ra.; Sherpakharka, Ra.; Mailungkhola, Ra. (Ingrisch & Garai, 2001), Safari Park wall, Ka.; Gokarna Forest Park, Bagmati River, Ka.; Num to Seduwa, Sa.; Sauraha, Rapti river, Ch.; SW Sauraha, Ch. NP, Ch.; Num to Chichila, Sa. (Ingrisch, 2006).

Note. *Phlaeoba* is spelt as *Phlaeba* in Bey-Bienko (1968). Chichila is spelt as Chichira in Ingrisch (2006).

Genus *Peripolus* Martínez y Fernández-Castillo, 1898

Peripolus pedarius (Stål, 1878) (Fig. 6)

New records. 2♂; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Judi khola; 27.81622°N, 84.72376°E; 550 ± 5 m a.s.l.; 22 Jan. 2022; M. Subedi leg.; Freshwater stream banks; ICAG (2♂)

Distribution in Nepal. Phaleksangu to Bhulbhule, Lm.; Bhulbule to Syange, Lm.; Sarangkot, Ks.; Tatopani, Myagdi (Balderson & Yin, 1987), N Bagmati River, Ka.; Dailekh Bajar, Da.; Arun Valley, Uwa, Sa.; Arun meadow, Lamobagar, Sa.; below Num, Sa.; Uwa to Arun Valley, Sa.; Seduwa to Num, Sa. (Ingrisch, 2006).

Subfamily Caryandinae Yin & Liu, 1987

Genus *Caryanda* Stål, 1878

Caryanda cachara (Kirby, 1914)* (Fig. 7)

New records. 5♂, 3♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Bhattar; 27.80734°N, 84.72893°E; 450 ± 5 m a.s.l.; Jun.–Sep. 2022; M. Subedi leg.; Subtropical Sal forest; ICAG (1♂, 1♀).

General distribution. North-East India (Cigliano et al., 2023).



Figure 4. *Phlaeoba antennata antennata*. **A-C.** Nymph; **D-E.** Male; **F-G.** Female.

Diagnosis. Head in front and head and pronotum above, green; a wide black stripe runs behind each eye covering the sides as far as the base of the hind femora; Tegmina black, bordered within with green, oval, lateral, extending as far as the third segment of the abdomen; Wings abbreviated; Hind femora red towards the extremity, with the knees black.

Subfamily Catantopinae Brunner von Wattenwyl, 1893

Genus *Bibracte* Stål, 1878

***Bibracte burmana burmana* Ramme, 1941* (Figs 8–9)**

New records. 15♂, 20♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, subtropical Sal forest 50 meters northwest of Shree Netrajyoti Basic School; 27.80854°N, 84.71920°E; 465 ± 5 m a.s.l.; Apr.–Dec. 2022; M. Subedi leg.; Subtropical Sal forest; ICAG (1♂, 1♀).



Figure 5. *Phlaeoba infumata*, **A.** Nymph; **B.** Female; **C.** Male.

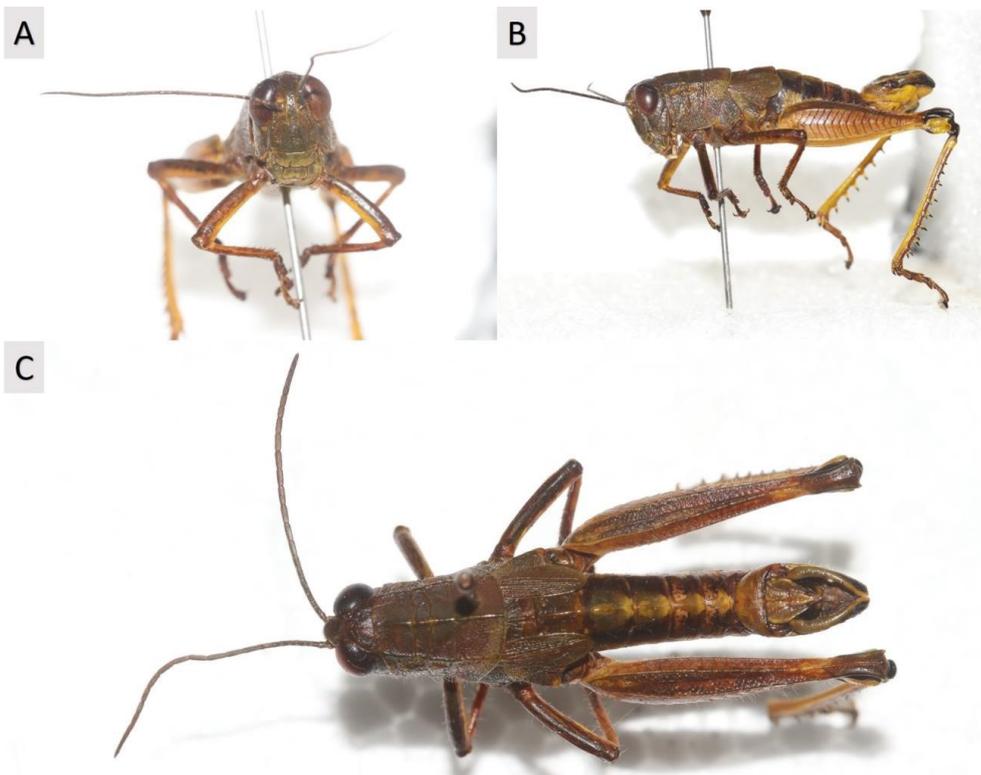


Figure 6. *Peripolus pedarius* male. **A.** Frontal view; **B.** Lateral view; **C.** Dorsal view.

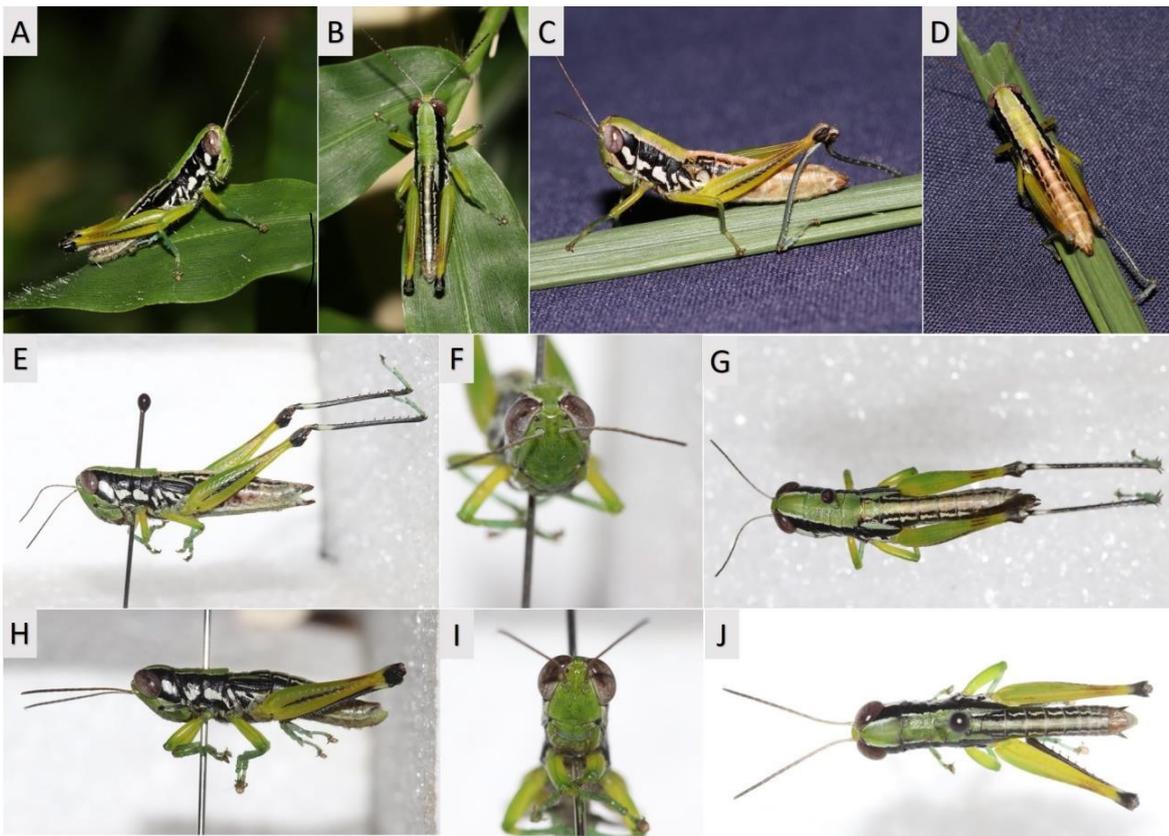


Figure 7. *Caryanda cachara*. **A., B., H., I. & J.,** Male; **C., D., E., F. & G.** Female.

General distribution. Myanmar (Cigliano et al., 2023).

Diagnosis. Posterior transverse furrows of pronotum with shallower and narrower pits; Tegmen broadly rounded apically; the enlargement at the anterior margin being shorter, higher, and somewhat more sharply separated.

Tribe Catantopini Brunner von Wattenwyl, 1893

Genus *Xenocatantops* Dirsh, 1953

Xenocatantops humilis (Serville, 1838) (Fig. 10)

New records. 10♂, 10♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Bhattar, near Agriculture Science Center; 27.80526°N, 84.72662°E; 455 ± 5 m a.s.l.; Mar.–Nov. 2022; M. Subedi leg.; Subtropical Sal forest; ICAG (1♂, 1♀).

Distribution in Nepal. mentioned without any specific localities (Uvarov, 1927), Sindhuwa, Dn.; Yenuwa, Tp.; Lelep, Tp.; Tapethok, Tp.; Tellok, Tp. (Chopard & Dreux, 1966), Maga Deurali to Kirantichhap, Do.; Likhu Khola to Sete to Lamjura, So.; Likhu Khola; Likhu Khola to Changma, Rm.; above Changma, Rm.; Changma Deurali, Rm.; Changma Deurali to Jiri, Do.; Kabre to Kirantichhap to Charange Khola, Do.; Chaubas, Kv. (Bey-Bienko, 1968), Dumre to Turture, Ta.; Turture, Ta. to Phaleksanghu, Lm.; Tatopani, My.; Tiger Tops to Tharu village, Ch.; Godawari, La. (Balderson & Yin, 1987), Eastern Pokhara, Ks.; Forest North of Thuloswanra, Ks.; between Baglunpani and Nalma, Lm. (Ingrisch, 1987), Manahari khola, Beluwa, Ma.; Bhimpheedi, Ma. (Ingrisch, 1990), Sauraha, Ch.; Bishazari taal, Ch.; SW Sauraha, Ch. NP, Ch.; Sauraha, 7 km NW (20000 lakes), Ch. (Ingrisch, 2006).

Note. District has not been mentioned for Likhu Khola as it lies in the boundary of several districts which is not clearly mentioned in the original text.

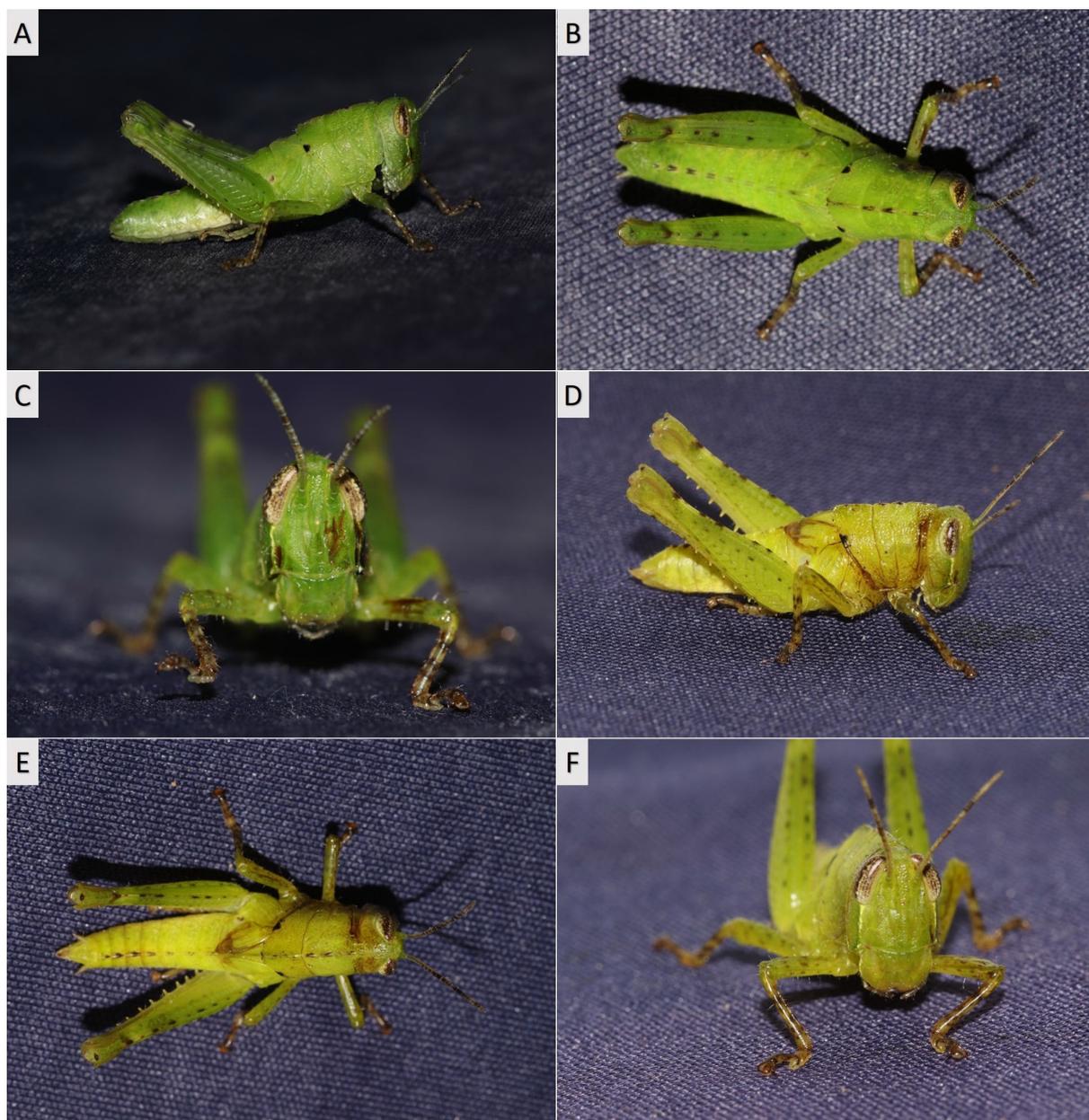


Figure 8. Nymphs of *Bibracte burmana*. **A-C.** Male; **D-F.** Female.

Subtribe Catantopina Brunner von Wattenwyl, 1893

Genus *Diabolocatantops* Jago, 1984

***Diabolocatantops innotabilis* (Walker, 1870) (Fig. 11)**

New records. 4♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Bhattar, Agriculture Science Center; 27.80830°N, 84.71896°E; 460 ± 5 m a.s.l.; Mar.–Nov. 2022; M. Subedi leg.; Agricultural fields; ICAG (1♀).

Distribution in Nepal. Tellok, Tp. (Chopard & Dreux, 1966), Gaindacamp, Ch. (Ingrisch, 1987), Sunkoshi valley, south of Bahrabise, Si.; Jhuwani, Rapti valley, Ch.; Tamakoshi river (Ingrisch, 1990), Dillikot, Kl.; Sauraha, Rapti river, Ch. (Ingrisch, 2006).

Note. The locality, Tamba khola, mentioned in the original text does not exist as such. However, in some texts Tamakoshi river is referred as Tambakoshi, the word khola means a river in Nepali. So, the locality should be the Tamakoshi river. The locality Jhuwani is spelt as Jhavani in the original text.

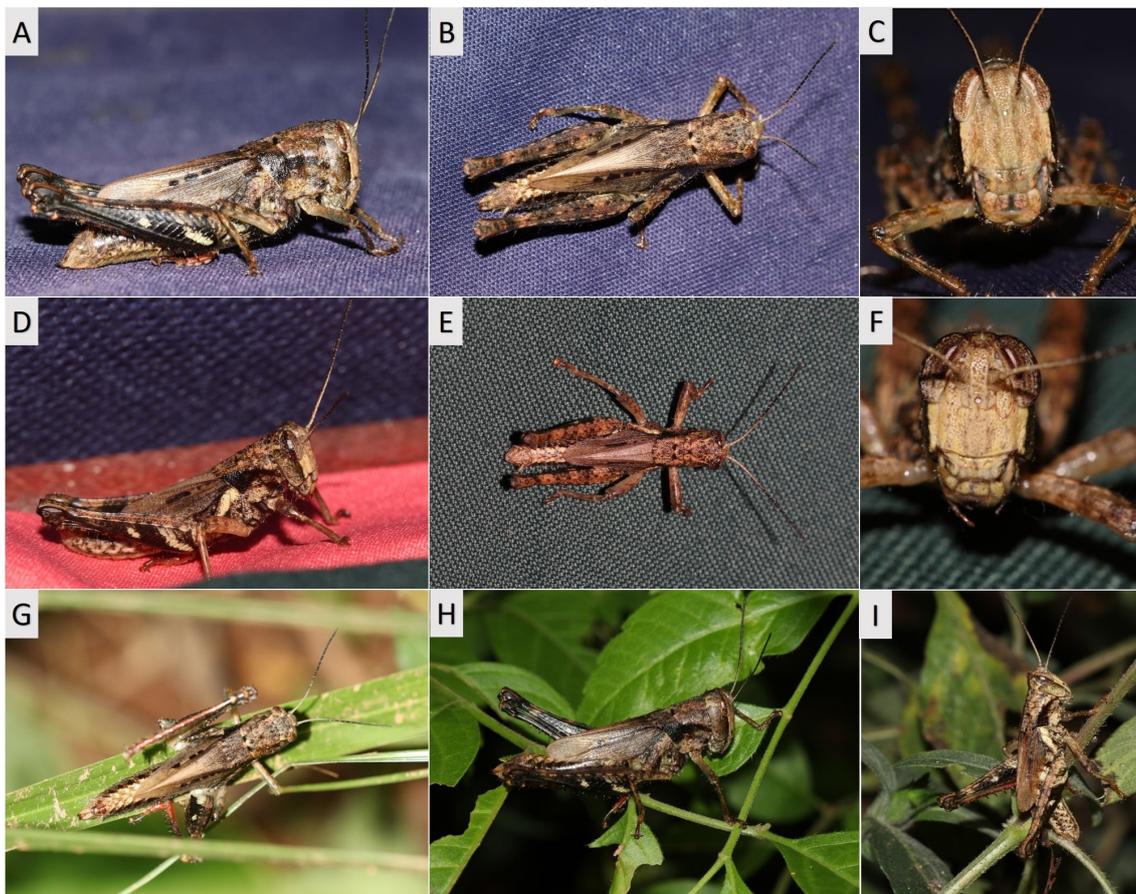


Figure 9. Adults of *Bibracte burmana*: **A., B., C. & G.,** Female; **D., E., F. & I.** Male.

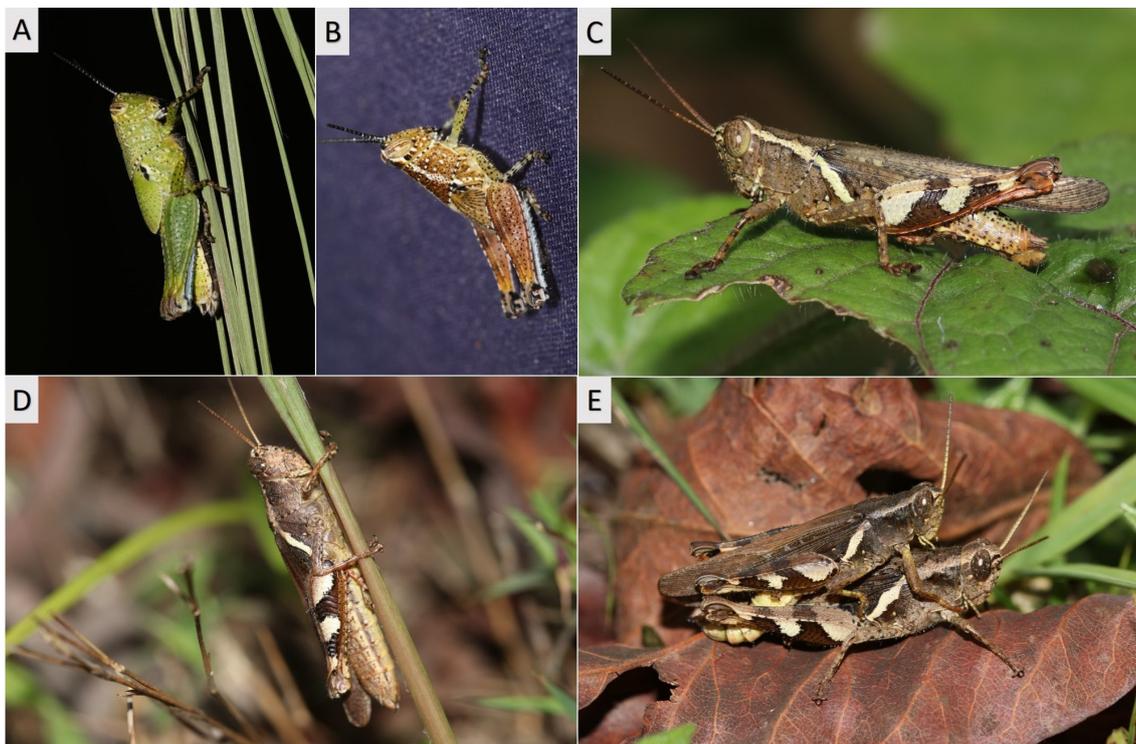


Figure 10. *Xenocatantops humilis*. **A.** Early instar nymph; **B.** Late instar nymph; **C.** Male; **D.** Female; **E.** Mating pair.

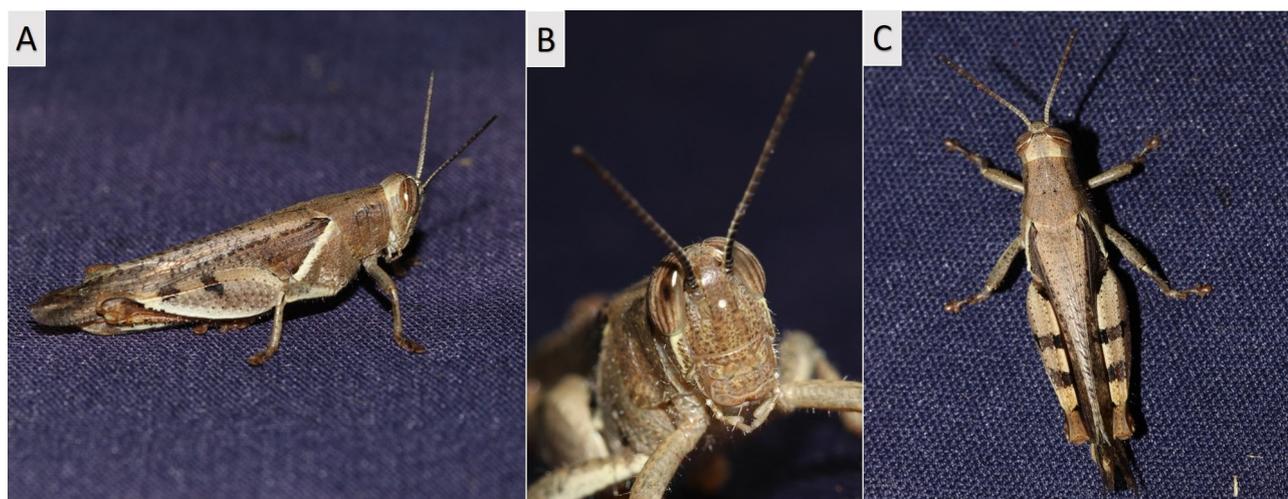


Figure 11. *Diabolocatantops innotabilis*. **A.** Dorso-lateral view; **B.** Frontal view; **C.** Dorsal view.

Genus *Stenocatantops* Dirsh, 1953

Stenocatantops splendens (Thunberg, 1815)* (Fig. 12)

New records. 8♂, 5♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, near Kapani khola; 27.80945°N, 84.72020°E; 470 ± 5 m a.s.l.; Apr.–Aug. 2021; M. Subedi leg.; Agricultural fields near Sal forest; ICAG (1♂, 1♀).

Note. Cannibalism (Fig. 12B) was observed in captivity when there was scarcity of food resources to the grasshopper.

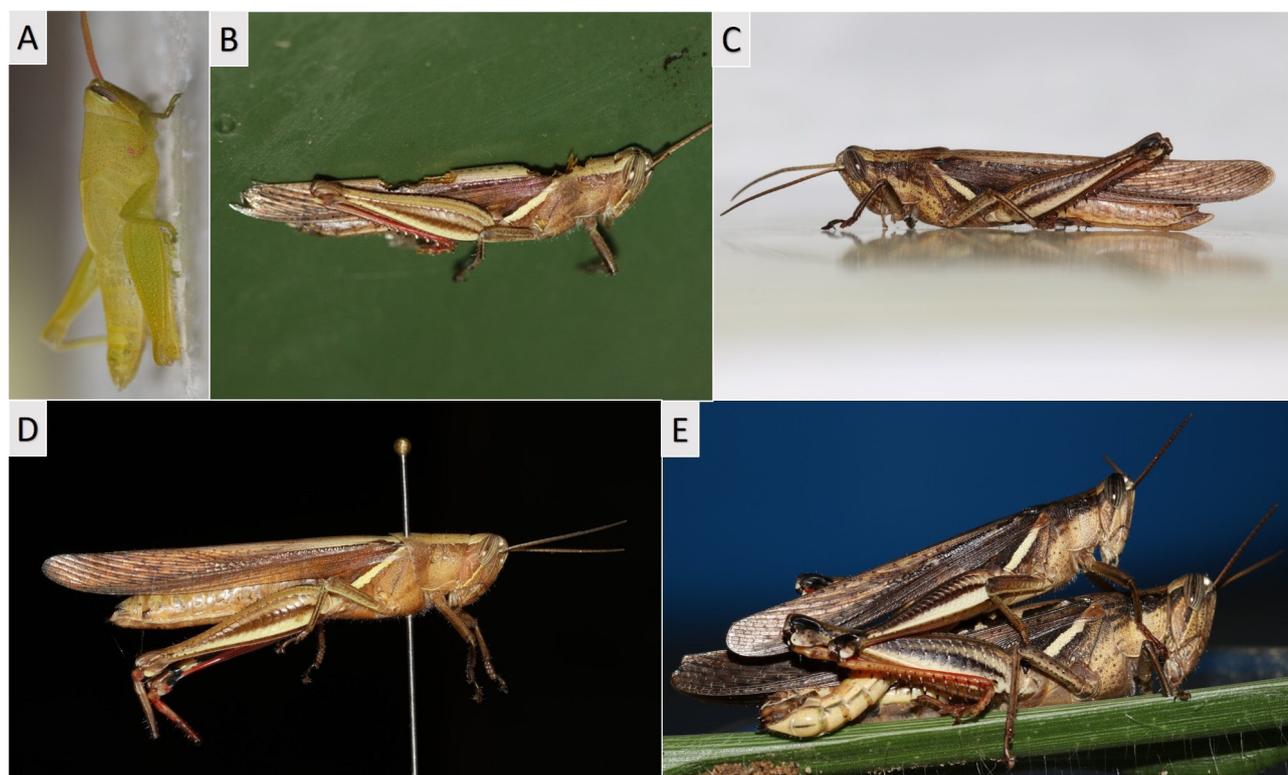


Figure 12. *Stenocatantops splendens*. **A.** Nymph; **B.** An individual eaten upon by another individual; **C.** Male; **D.** Female; **E.** Mating pair.

Subfamily Coptacrinae Brunner von Wattenwyl, 1893

Genus *Apalacris* Walker, 1870

Apalacris varicornis Walker, 1870 (Fig. 13)

New records. 10♂, 12♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Bhattar, Agriculture Science Center; 27.80830°N, 84.71896°E; 460 ± 5 m a.s.l.; Apr.–Aug. 2021; M. Subedi leg.; on *Blumea balsamifera*; ICAG (1♂, 1♀) | 5♂, 6♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Near ward no. 7 office; 27.80679°N, 84.72547°E; 460 ± 5 m a.s.l.; Apr.–Aug. 2021; M. Subedi leg.; only observed on *Blumea balsamifera* plant.

Distribution in Nepal. Dumre to Turture, Ta.; Turture, Ta. to Phaleksanghu, Lm.; Tiger Tops to Tharu village, Ch. (Balderson & Yin, 1987), Eastern Pokhara, Ks.; Forest North of Thuloswanra, Ks.; between Ghanpokhara and Kapurgaon, Lm.; lower Midim khola to Chisankhu, Lm.; south of Begnas lake, Ks.; east of Charaudi, Dh.; Mugling Bazar, Ch.; Gaindacamp, Ch. (Ingrisch, 1987), Betrawoti to Pairebeshi, Ra.; Pairebeshi, Ra.; Diyale, Ra.; Sherpakharka, Ra.; Sheplu, Ra.; Mailungkhola, Ra. (Ingrisch & Garai, 2001), Lamobagar, Sa.; Num to Arun valley, Sa. (Ingrisch, 2006).

Distribution in Nepal. Likhu Khola; Kabre to Kirantichhap to Charange Khola, Do. (Bey-Bienko, 1968), Sindhuwa, Dn.; Lelep, Tp.; Tellok, Tp. (Chopard & Dreux, 1966), Modi khola, Thak valley, Ks.; Madi khola, Namarjung valley, Ks. (Ingrisch, 1987), Sunkoshi valley, south of Bahrabise, Si.; Chisapani Gadhi, Ma.; Jubing, So. (Ingrisch, 1990), Birtamod, Jh. (Ingrisch, 2001), Lamobagar, Sa. (Ingrisch, 2006).

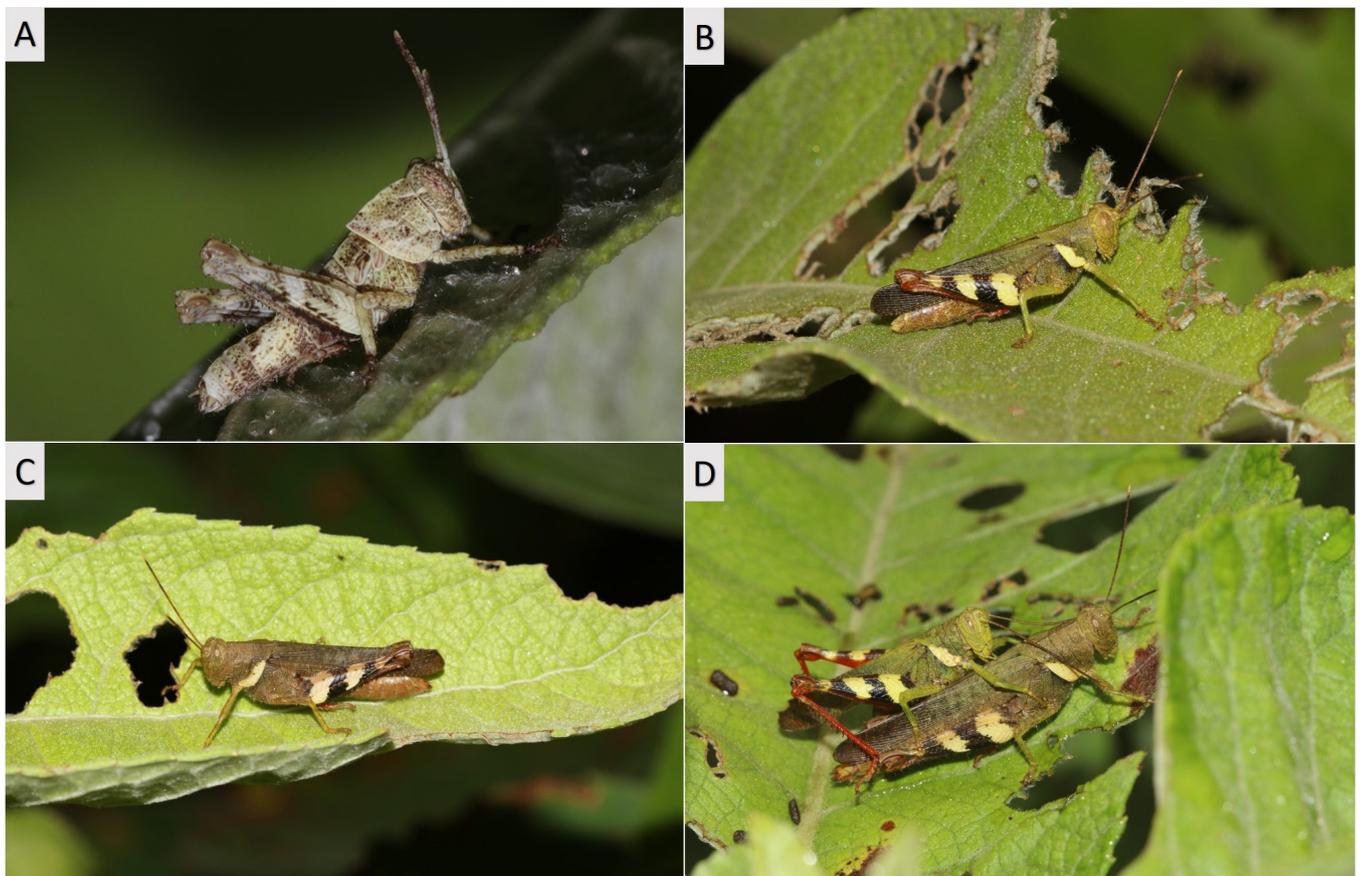


Figure 13. *Apalacris varicornis*. **A.** Nymph; **B.** Adult male; **C.** Adult female; **D.** Mating pair.

Genus *Eucoptacra* Bolívar, 1902

Eucoptacra praemorsa (Stål, 1861) (Fig. 14)

New records. 16♂, 18♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, near Kapani khola; 27.80945°N, 84.72020°E; 470 ± 5 m a.s.l.; Mar.–Nov. 2021; M. Subedi leg.; Agricultural fields near Sal forest; ICAG (1♂, 1♀).

Distribution in Nepal. Modi khola, Thak valley, Ks. (Ingrisch, 1987), Sunkoshi valley, south of Bahrabise, Si.; Manahari khola, Beluwa, Ma.; Bhaise Dobhan, Ma.; Jubing, So. (Ingrisch, 1990).

Subfamily Cyrtacanthacridinae Kirby, 1910

Genus *Pachyacris* Uvarov, 1923

Pachyacris vinosa (Walker, 1870) (Fig. 15)

New records. 4♂, 4♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Mukhin danda; 27.80918°N, 84.71919°E; 470 ± 5 m a.s.l.; 22 Jan. 2022; M. Subedi leg.; Fallow fields with Cogon grass; ICAG (1♂, 1♀).

Distribution in Nepal. Maga Deurali to Kirantichhap, Do.; Hanumante to Jiri, Do. (Bey-Bienko, 1968), Dumre to Turture, Ta. (Balderson & Yin, 1987), lower Midim khola to Chisankhu, Lm. (Ingrisch, 1987), Manahari khola, Beluwa, Ma.; Chisapani Gadhi, Ma. (Ingrisch, 1990), Ramche, Ra. (Ingrisch, 2001), Diyale, Ra.; Mailungkhola, Ra. (Ingrisch & Garai, 2001), Kathmandu to Pokhara, Mowa Khola, Dh. (Ingrisch, 2006).

Note. Hanumante is spelt as Hanomante in the original text.

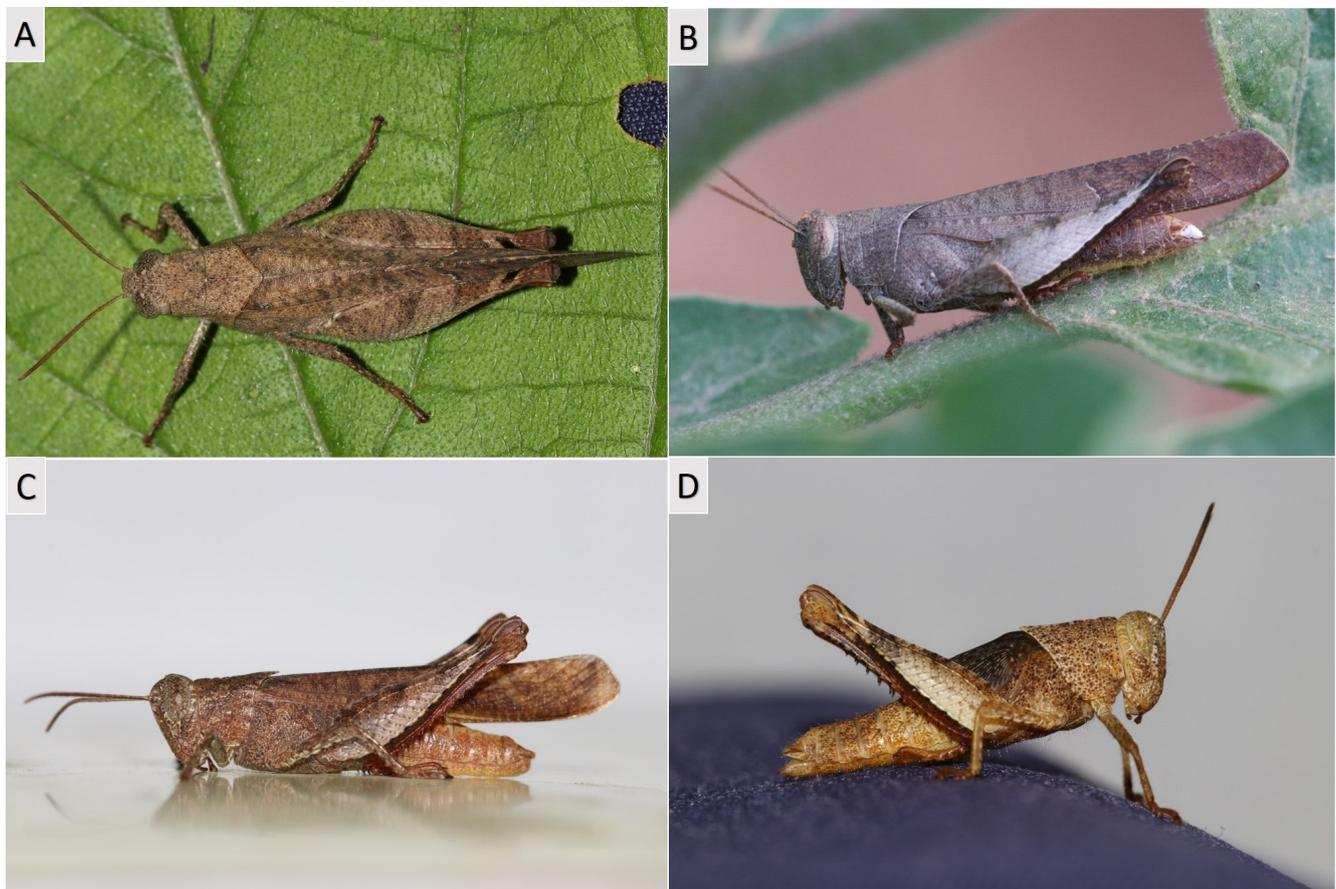


Figure 604. *Eucoptacra praemorsa*. A–B., Female; C. Male; D. Nymph.

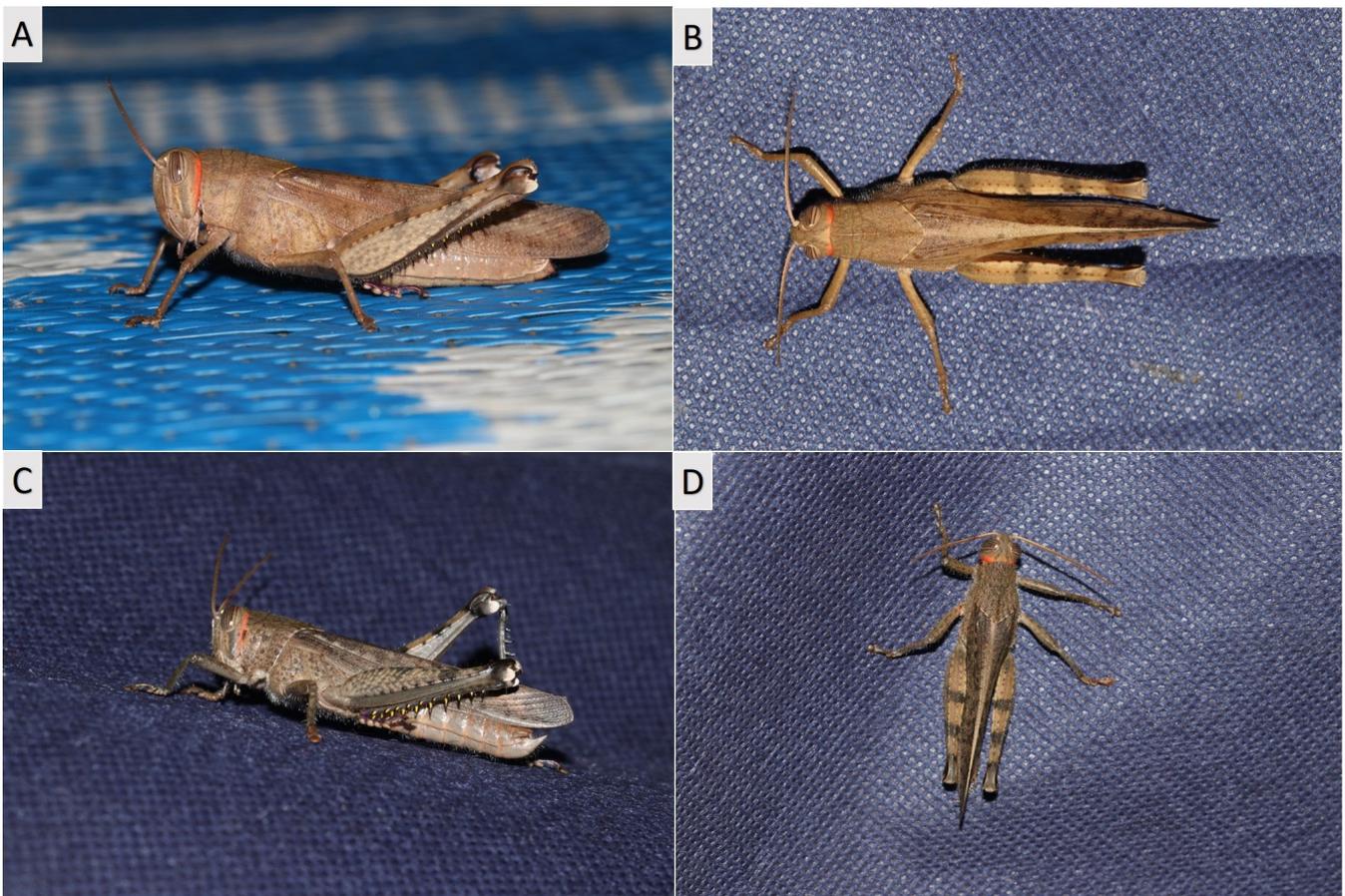


Figure 15. *Pachyacris vinosa*. A–B., Female; C–D., Male.

Tribe Cyrtacathacridini Kirby, 1910

Genus *Chondracris* Uvarov, 1923

Chondracris rosea (De Geer, 1773) (Fig. 16)

New records. 1♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Churlingtar; 27.80894°N, 84.72426°E; 510 ± 5 m a.s.l; 22 Sep.2020; M. Subedi leg.; Agricultural field.

Distribution in Nepal. Kathmandu, Ka.; Charikot, Do. (Joshi & Manandhar, 2001).

Subfamily Eyprepocnemidinae Brunner von Wattenwyl, 1893

Genus *Tylotropidius* Stål, 1873

Tylotropidius varicornis (Walker, 1870) (Fig. 17)

New records. 10♂, 14♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Mukhin danda; 27.80918°N, 84.71919°E; 470 ± 5 m a.s.l; Mar.–Nov. 2020; M. Subedi leg.; Fallow fields with Cogon grass; ICAG (1♂, 1♀).

Distribution in Nepal. Cha khola valley, Kv.; Rasnal, Rm. to Pheda Khola, Do. (Bey-Bienko, 1968), Tiger Tops to Tharu village, Ch. (Balderson & Yin, 1987).

Note. The locality Rasnal is spelt as Resangu in the original text.

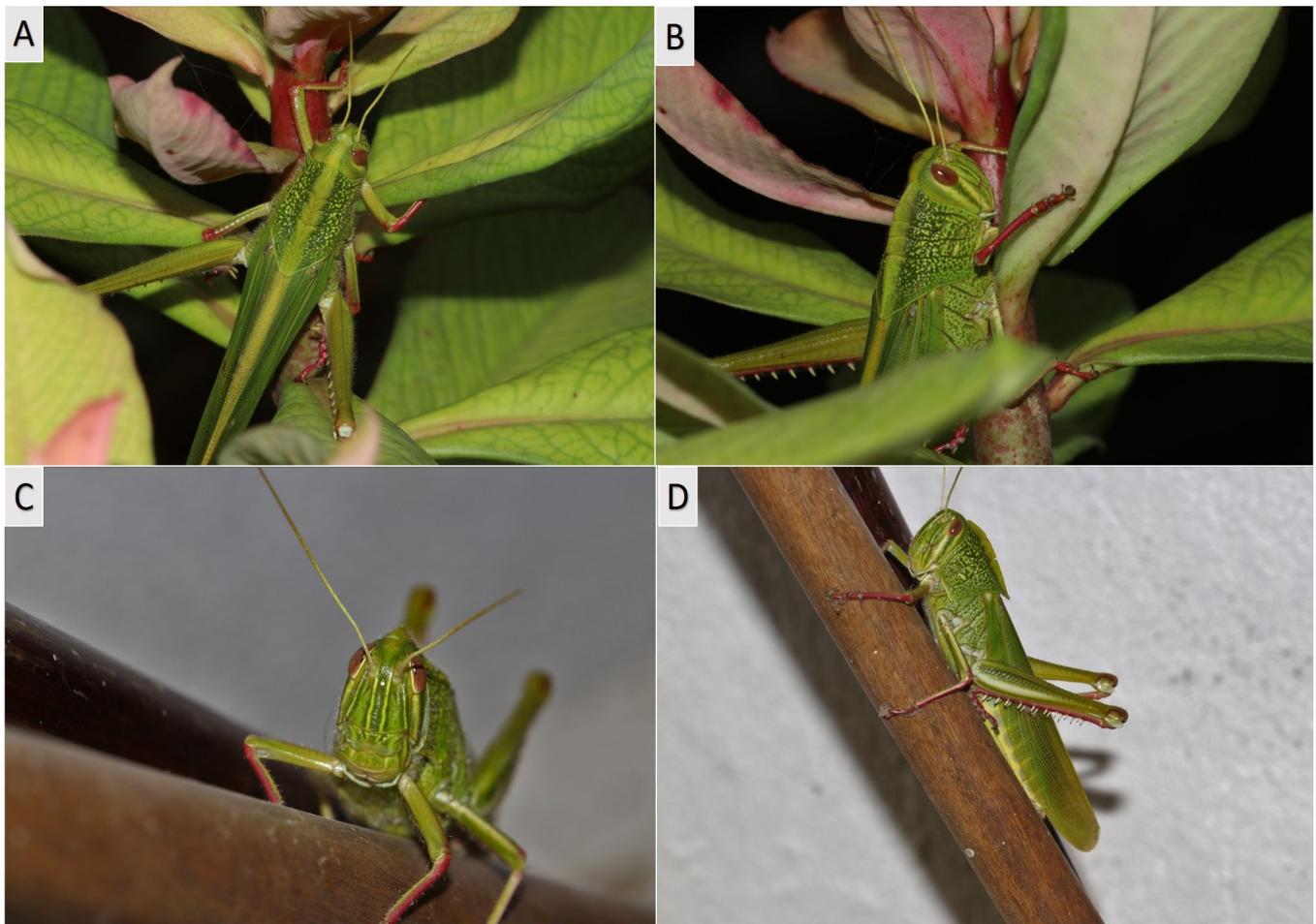


Figure 16. *Chondacris rosea* female. **A.** Dorsal view; **B.** Dorso-lateral view; **C.** Frontal view; **D.** Lateral view.

Subfamily Gomphocerinae Fieber, 1853

Genus *Mesopsis* Bolívar, 1906

Mesopsis cylindricus (Kirby, 1914) (Fig. 18)

New records. 7♂, 10♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Tinbhangle, Trishuli river; 27.80280°N, 84.70870°E; 310 ± 5 m a.s.l; Jun.–Aug. 2020; M. Subedi leg.; only observed on *Saccharum spontaneum* grass at the riverbank.

Distribution in Nepal. Gaindacamp, Ch. (Ingrisch, 1987).

Tribe Gomphocerini Fieber, 1853

Genus *Chorthippus* Fieber, 1852

Chorthippus sp. (Fig. 19)

New records. 12♂, 14♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Bhattar, near Agriculture Science Center; 27.80526°N, 84.72662°E; 455 ± 5 m a.s.l; Mar.–Dec. 2022; M. Subedi leg.; Subtropical Sal forest; ICAG (1♂, 1♀).

Distribution in Nepal (for the genus). Ta., Lm., Mn., Myagdi, Mn., Mu., Pa. (Balderson & Yin, 1987), So. (Ingrisch, 1990), Ra. (Ingrisch & Garai, 2001), Ba., Hu., Ju., Kl. (Ingrisch, 2006).

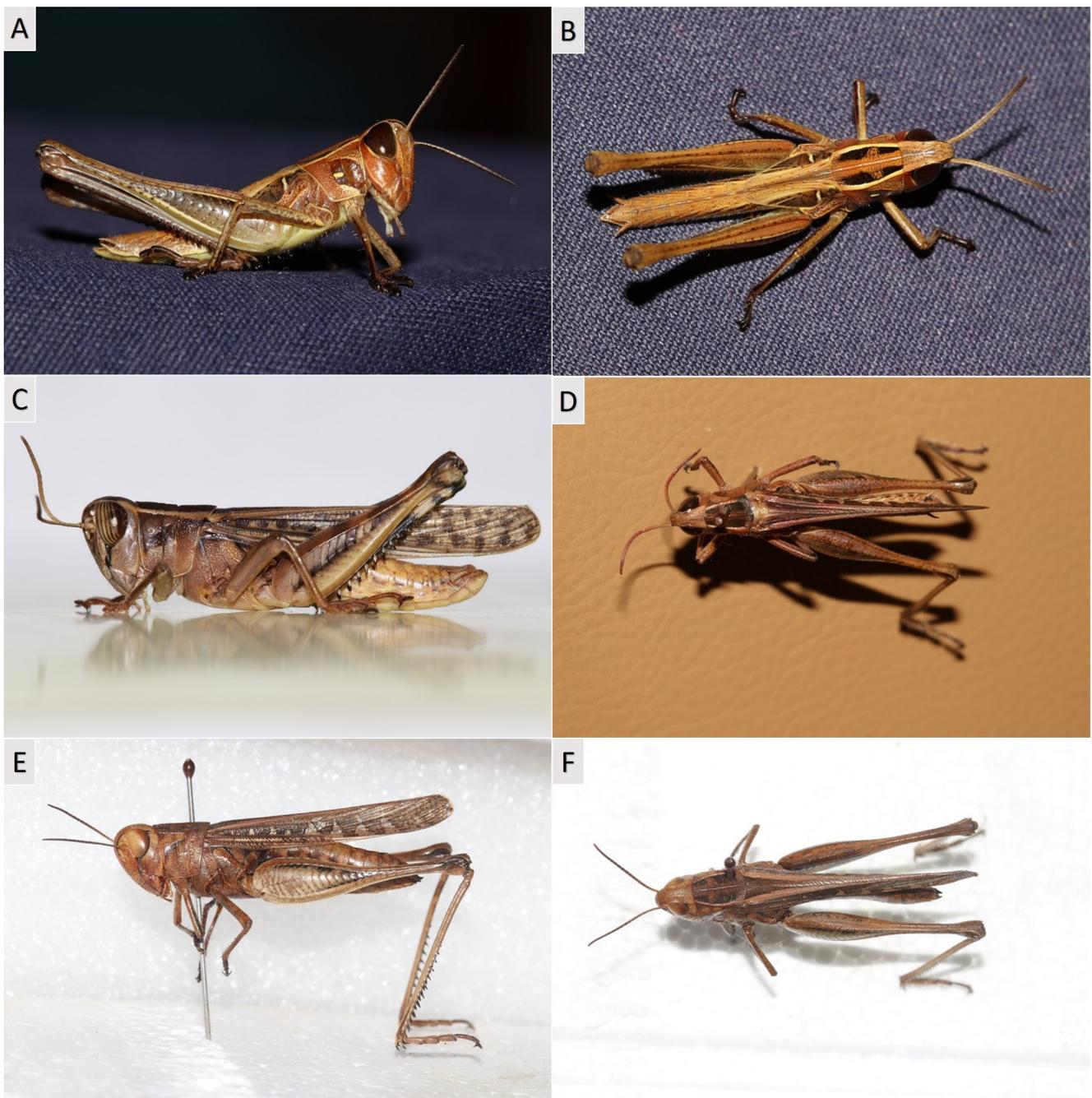


Figure 17. *Tylotropidius varicornis*. **A-B.** Nymph; **C-D.** Male; **E-F.** Female.

Tribe Ochrlidiini Brunner von Wattenwyl, 1893

Genus *Gonista* Bolívar, 1898

***Gonista bicolor* (Haan, 1842)* (Fig. 20)**

New records. 10♂, 8♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Subtropical Sal forest 20 meters southwest of Shree Netrajyoti Basic School; 27.80830°N, 84.71896°E; 460 ± 5 m a.s.l.; Jun.–Aug. 2022; M. Subedi leg.; Subtropical Sal forest; ICAG (1♂, 1♀).

General distribution. Singapore, Vietnam, China, Korea, Japan (Cigliano et al., 2023).

Diagnosis. Hind knees produced into short and equal spines.



Figure 18. *Mesopsis cylindricus*. **A-B.** Female; **C-D.** Male; **E.** Mating pair.

Subfamily Hemicacridinae Dirsh, 1956

Tribe Hieroglyphini Bolívar, 1912

Genus *Hieroglyphus* Krauss, 1877

***Hieroglyphus banian* (Fabricius, 1798) (Fig. 21)**

New records. 1♂, 1♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Churlingtar; 27.80526°N, 84.72662°E; 455 ± 5 m a.s.l.; 23 July, 2020; M. Subedi leg.; Agricultural field.

Distribution in Nepal. Kathmandu, Ka. (Joshi & Manandhar, 2001).

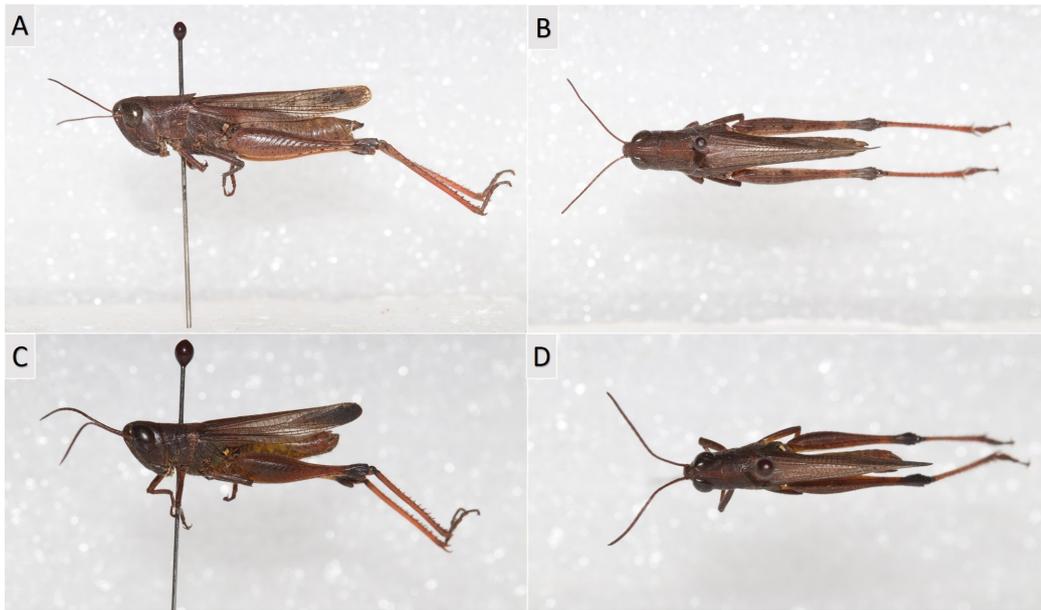


Figure 19. *Chorthippus* sp. **A-B.** Female; **C-D.** Male.

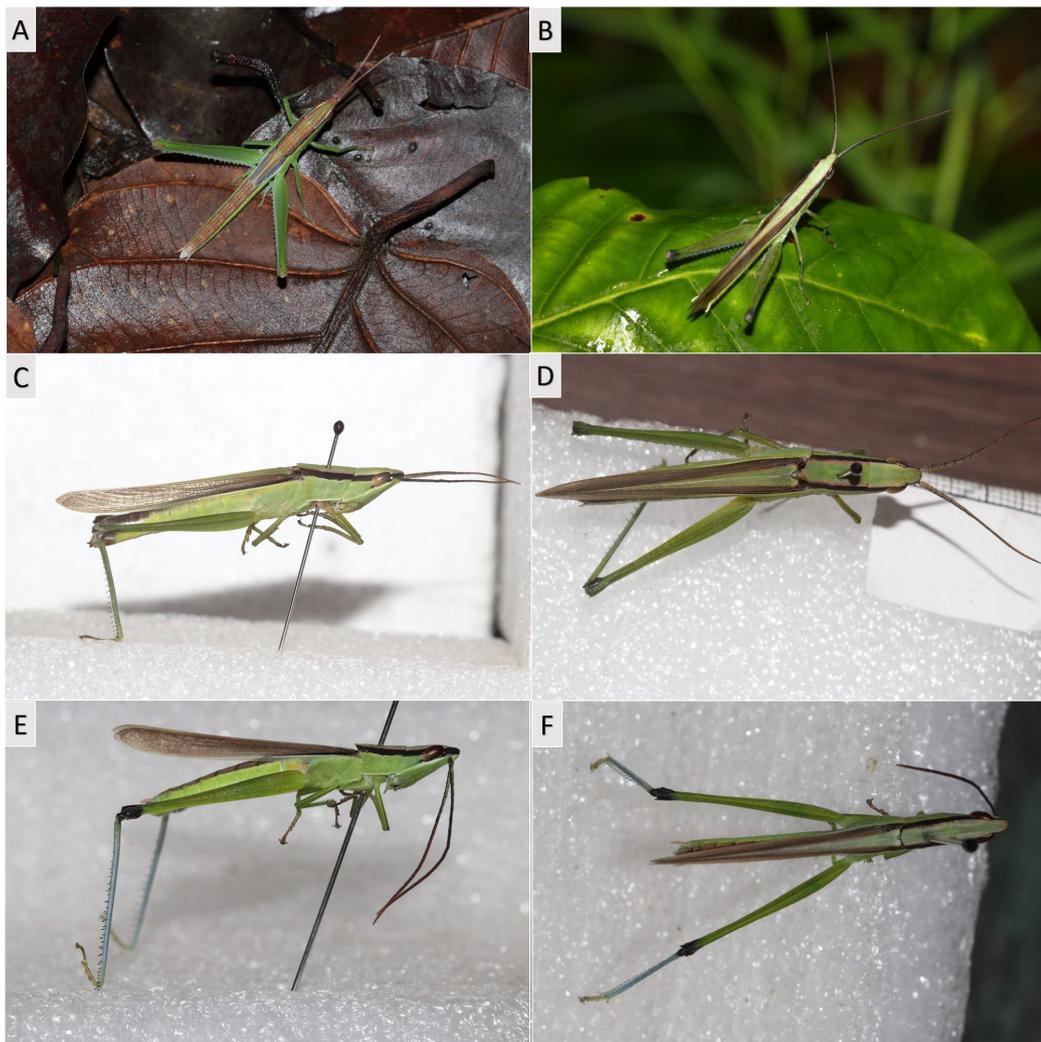


Figure 20. *Gonista bicolor*. **A.** Male nymph; **B.** Adult male; **C-D.** Female; **E-F.** Male.

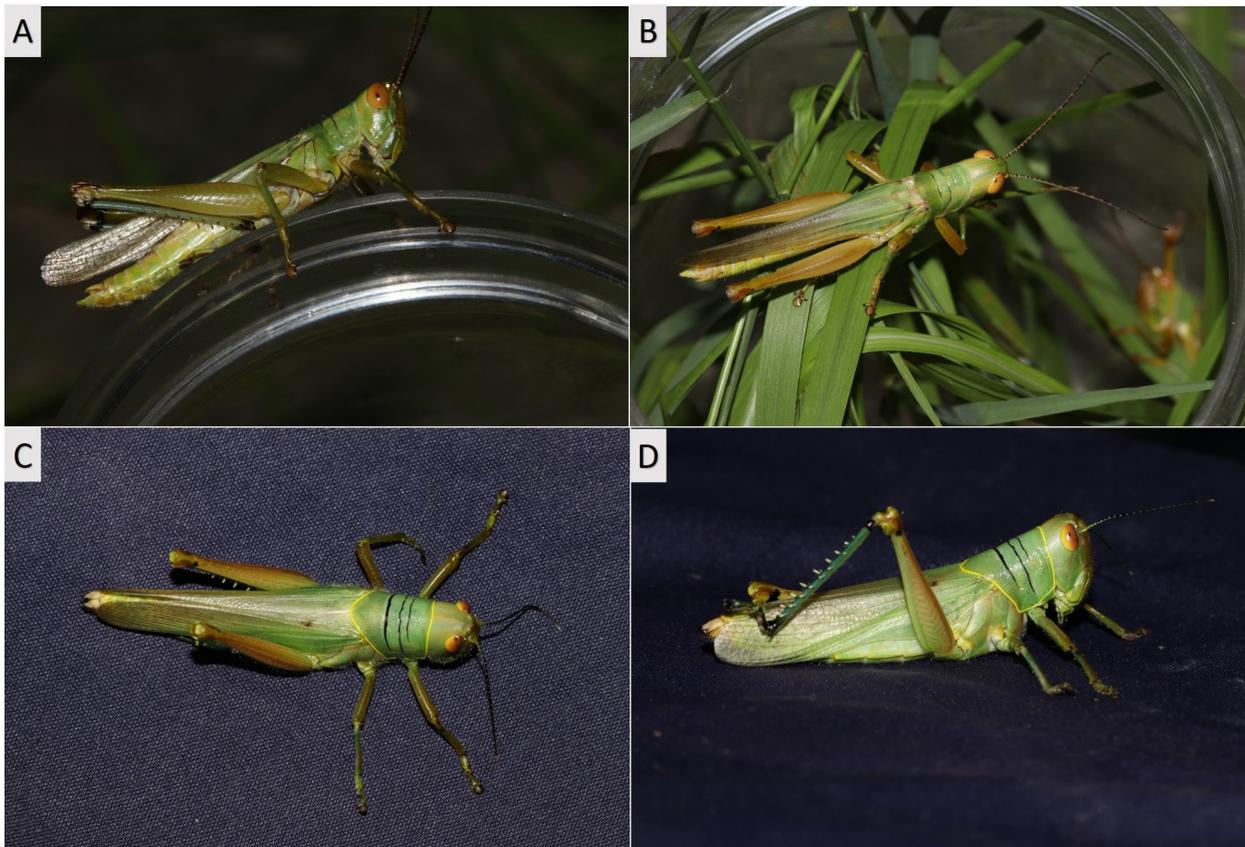


Figure 21. *Hieroglyphus banian*. A–B. Male; C–D. Female.

Subfamily Oedipodinae Walker, 1871

Tribe Acrotylini Johnston, 1956

Genus *Acrotylus* Fieber, 1853

***Acrotylus humbertianus* Saussure, 1884 (Fig. 22)**

New records. 8♂, 8♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Maranghat, Trishuli river; 27.80366°N, 84.71711°E; 310 ± 5 m a.s.l; Jun.–Aug. 2020; M. Subedi leg.; riverbank.

Distribution in Nepal. Lelep, Tp. (Chopard & Dreux, 1966), Manahari khola, Beluwa, Ma. (Ingrisch, 1990).

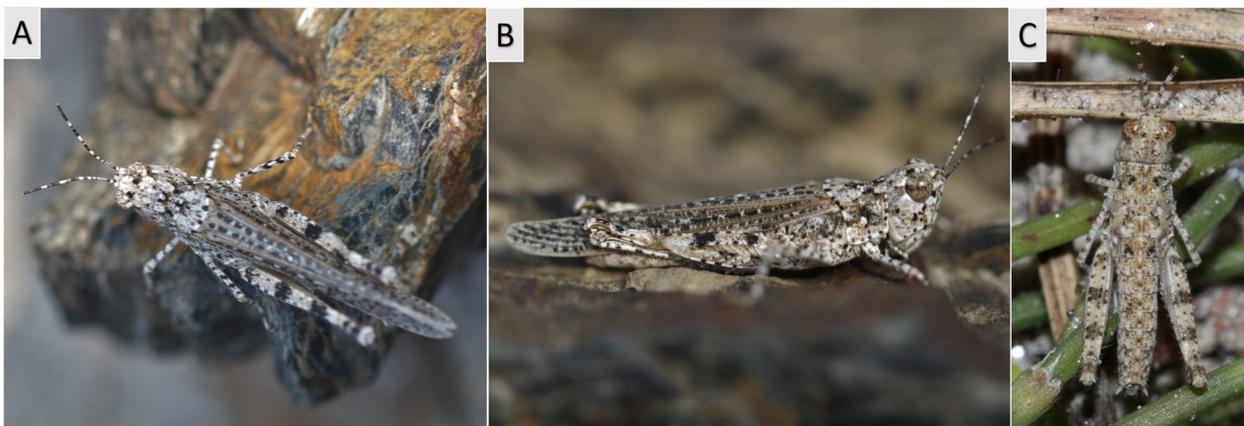


Figure 22. *Acrotylus humbertianus*. A–B. Adult; C. Nymph.

Tribe Locustini Kirby, 1825

Genus *Gastrimargus* Saussure, 1884

Gastrimargus africanus (Saussure, 1888) (Fig. 23)

New records. 10♂, 14♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Mukhin danda; 27.80918°N, 84.71919°E; 470 ± 5 m a.s.l.; Mar.–Nov. 2020; M. Subedi leg.; Fallow fields with Cogon grass; ICAG (1♂, 1♀) | 12♂, 12♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, ward no. 7 office; 27.80679°N, 84.72547°E; 460 ± 5 m a.s.l.; Apr.–Aug. 2021; M. Subedi leg.; Open ground with sparse grasses.

Distribution in Nepal. Hanumante to Jiri, Do.; Namdu, Do.; Kabre to Kirantichhap to Charange Khola, Do.; Chaubas, Do. (Bey-Bienko 1968), Nagarkot, Bh. (Ritchie, 1982), north of Rupa lake, Ks. (Ingrisch, 1987), Dumre to Turture, Ta.; near Nagarkot, Bh. (Balderson & Yin, 1987), Manahari khola, Beluwa, Ma.; Chisapani Gadhi, Ma.; Bhaise Dobhan, Ma.; Sunkoshi valley, Dolalghat, Kv. (Ingrisch, 1990), Betrawoti to Pairebeshi, Ra.; Diyale, Ra.; Mailungkhola, Ra.; Betrawoti, near river, Ra. (Ingrisch & Garai, 2001), Bhulbhule, Lm.; Chhipra, Humla Karnali to Simikot, Hu.; Talphi, Ju.; Talphi to Lamri, Ju.; Lamri, Ju.; Sauraha, 7 km NW (20000 lakes), Ch. (Ingrisch, 2006).

Note. The localities, Dolalghat, and Chhipra are spelt respectively as Daulaghat, and Chipra in the respective original text.

Notes on variability. Two different colors were observed: (i) greenish (Fig. 23A, C), (ii) brownish (Fig. 23B, D).

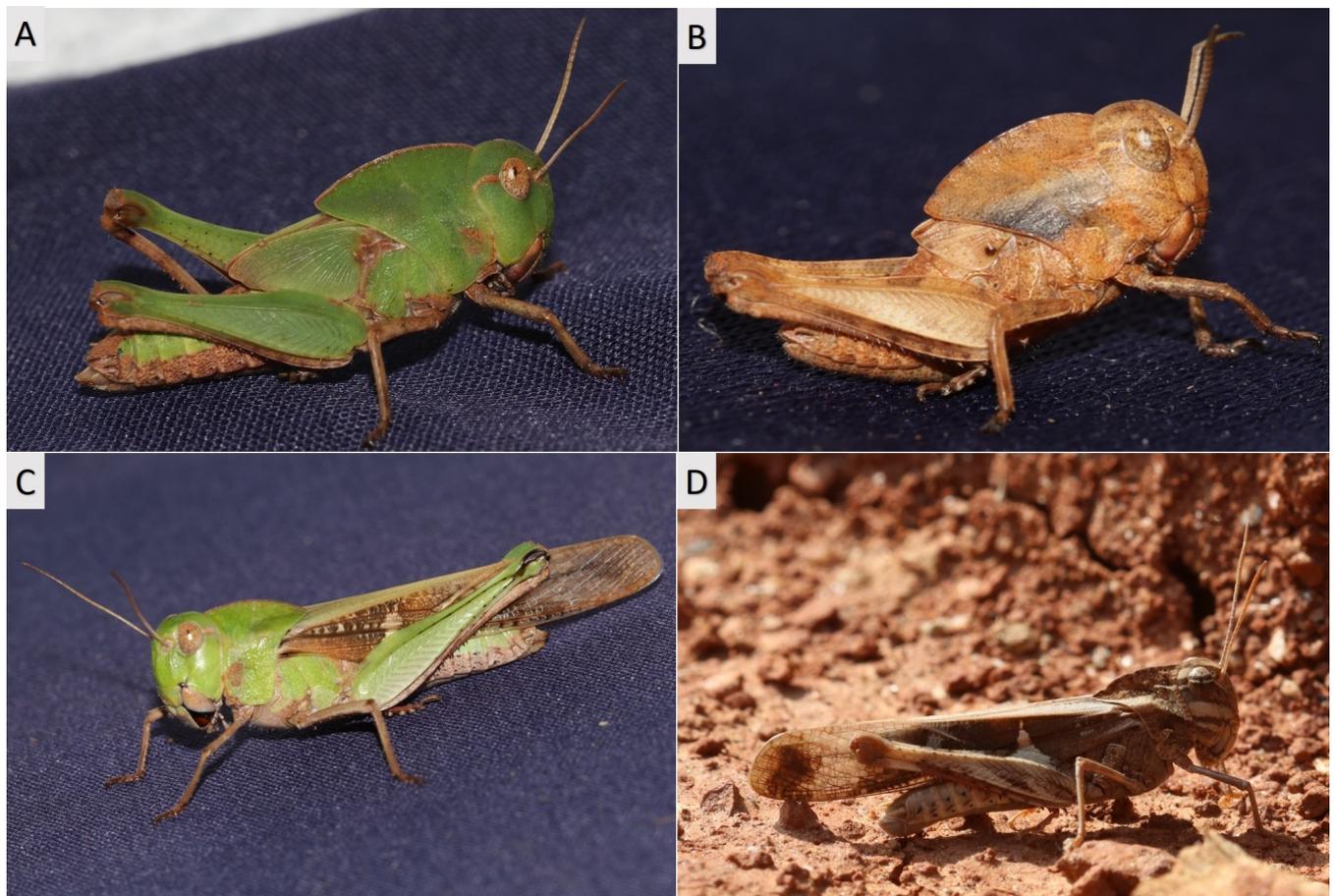


Figure 23. *Gastrimargus africanus*. **A.** Green colored nymph; **B.** Brown colored nymph; **C.** Green colored adult female; **D.** Brown colored adult female.

Tribe Parapleurini Brunner von Wattenwyl, 1893

Genus *Ceracris* Walker, 1870

Ceracris fasciata (Brunner von Wattenwyl, 1893) (Fig. 24)

New records. 10♂, 10♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Subtropical Sal forest 20 meters southwest of Shree Netrajyoti Basic School; 27.80830°N, 84.71896°E; 460 ± 5 m a.s.l; Jun.–Aug. 2021; M. Subedi leg.; Subtropical Sal forest; ICAG (1♂, 1♀).

Distribution in Nepal. Chisapani Gadhi (= Chisapani Garhi in the original text), Ma. (Ingrisch, 1990).

Tribe Trilophidiini Shumakov, 1963

Genus *Trilophidia* Stål, 1873

Trilophidia annulata (Thunberg, 1815) (Fig. 25)

New records. 16♂, 12♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Bhattar, Agriculture Science Center; 27.80830°N, 84.71896°E; 460 ± 5 m a.s.l; Apr.–Aug. 2021; M. Subedi leg.; Agricultural field; ICAG (1♂, 1♀).

Distribution in Nepal. mentioned without any specific localities (Hollis, 1965), Tamor river bridge, Dn.; Sindhuwa, Dn.; Yenuwa, Tp.; Lelep, Tp.; Tapethok, Tp.; Dovan, Tp.; Tellok, Tp. (Chopard & Dreux, 1966), Cha khola valley, Kv.; Likhu Khola; Kabre to Kirantichhap to Charange Khola, Do. (Bey-Bienko, 1968), Dumre to Turture, Ta.; Turture, Ta. to Phaleksangu, Lm.; Tiger Tops to Tharu village, Ch.; near Nagarkot, Bh. (Balderson & Yin, 1987), Forest North of Thuloswanra, Ks.; between Ghanpokhara and Kapurgaon, Lm.; Baglungpani, Lm. (Ingrisch, 1987), Chhauni, Ka.; Godawari, La.; Sunkoshi valley, south of Bahrabise, Si.; Rasnal, Rm.; Manahari khola, Beluwa, Ma.; Chisapani Gadhi, Ma.; Jiri, Do. (Ingrisch, 1990), Kathmandu, Ka.; Betrawoti, Ra.; Pairebeshi, Ra.; Diyale, Ra.; Sherpakharka, Ra.; Mailungkhola, Ra. (Ingrisch & Garai, 2001), N Il., Il. (Ingrisch, 2001), Bagmati River, Ka.; NW Gokarna Forest Park, Bagmati River, Ka.; 15 km N Da., Bharaina, Da.; Dillikot, Kl.; Tila River, Ju.; Arun Valley, Uwa, Sa.; Num to Sedua, Sa.; Mitlung to Siruwa, Tp.; Sauraha, Rapti river, Ch.; SW Sauraha, Ch. NP, Ch.; Tp. (Phungling) to Mitlung, Tp. (Ingrisch, 2006).

Note. Bharaina, Siruwa, and Taplejung are spelt respectively as Bharaina, Ciruwa, and Tablejung in the original text.

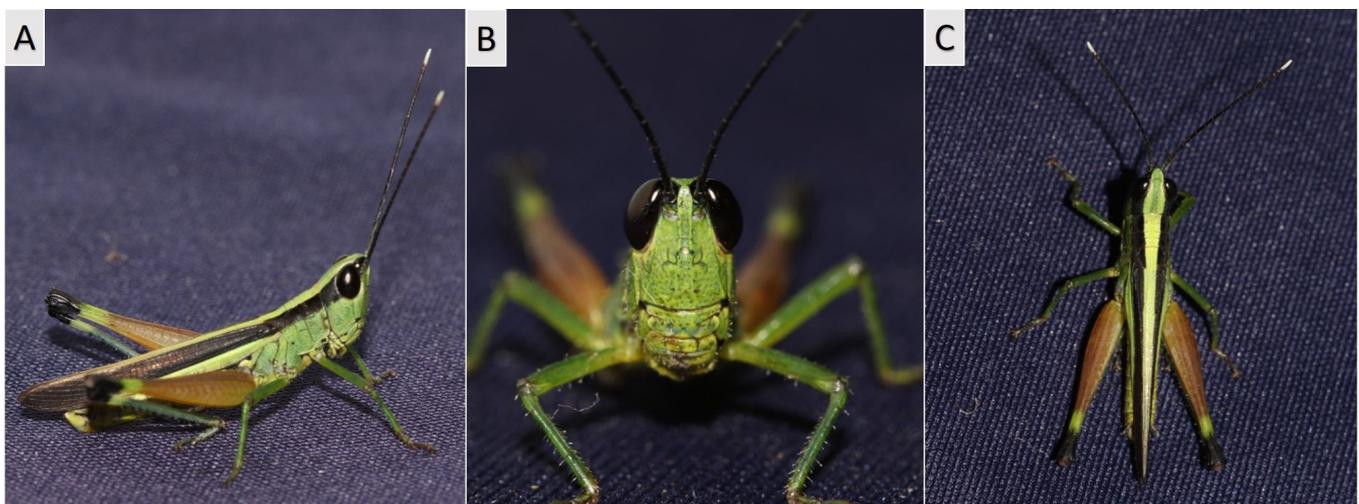


Figure 24. *Ceracris fasciata* male. **A.** Lateral view; **B.** Frontal view; **C.** Dorsal view.

Subfamily Oxyinae Brunner von Wattenwyl, 1893**Tribe Oxyini Brunner von Wattenwyl, 1893****Genus *Oxya* Serville, 1831*****Oxya hyla* Serville, 1831 (Fig. 26)**

New records. 30♂, 30♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Jyamireghat; 27.80227°N, 84.71346°E; 320 ± 5 m a.s.l; Jun.–Nov. 2020; M. Subedi leg.; Agricultural fields; ICAG (1♂, 1♀).

Distribution in Nepal. No specific localities mentioned (Hollis, 1971), Eastern Pokhara, Ks. (Ingrisch, 1987), Chaubas, Kv. (Ingrisch, 1990), Nepalgunj, Bn.; Lamobagar, Sa.; Arun Valley, Tumlingtar, Sa.; Ghanna to Latinath, Dr.; Mahendranagar, Hotel New Anand, Kp. (Ingrisch, 2006).

Note. Nepalgunj is mentioned as a district in the original text.

Subfamily Spathosterninae Rehn, 1957**Tribe Spathosternini Rehn, 1957****Genus *Spathosternum* Krauss, 1877*****Spathosternum prasiniferum* (Walker, 1871) (Fig. 27)**

New records. 20♂, 23♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, near Kapani khola; 27.80945°N, 84.72020°E; 470 ± 5 m a.s.l; Jan.–Dec. 2021; M. Subedi leg.; Agricultural fields near Sal forest; ICAG (1♂, 1♀).

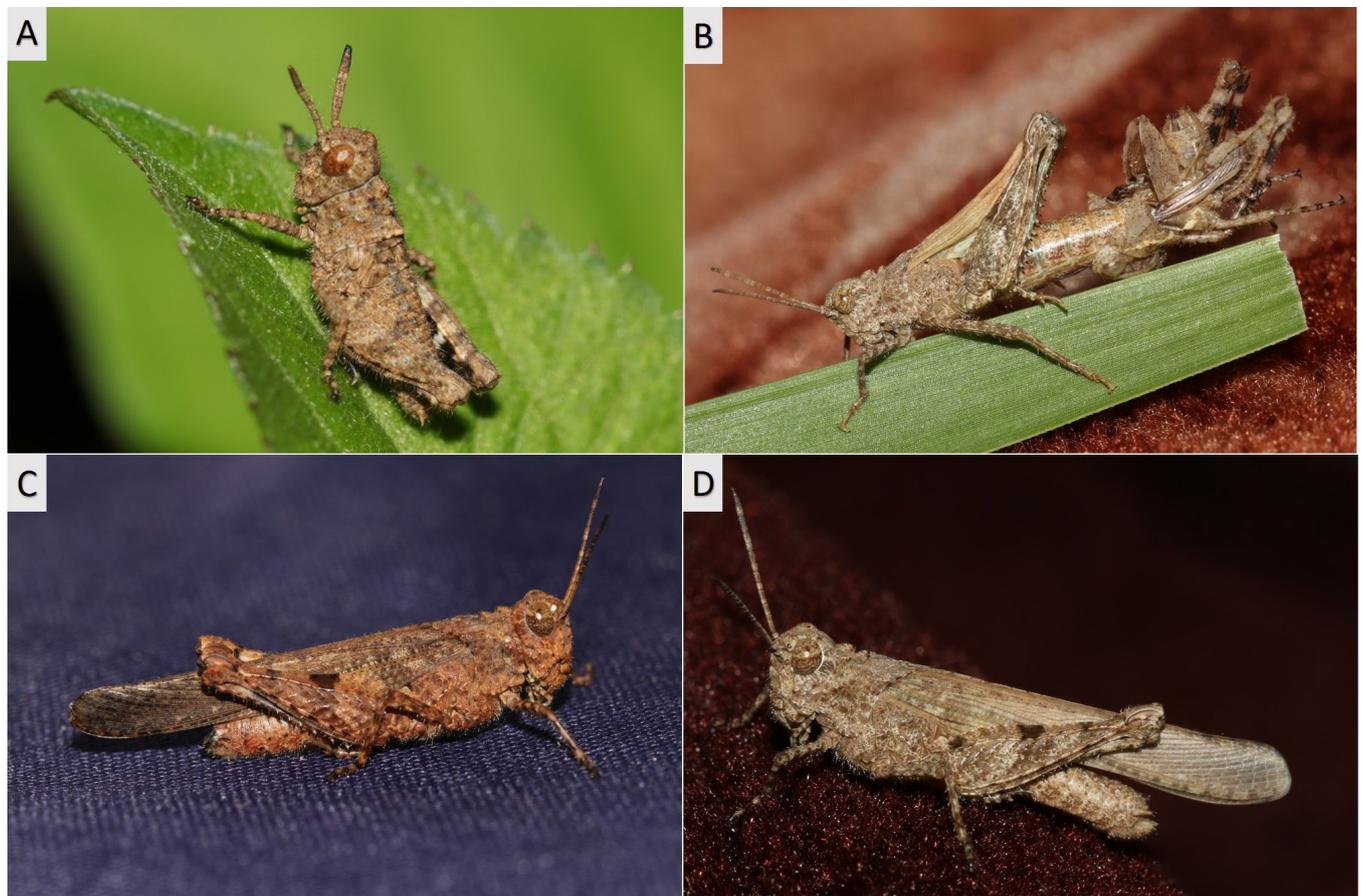


Figure 25. *Trilophidia annulata*. **A.** Nymph; **B.** Nymph molting into an adult in captivity; **C.** Female; **D.** Male.

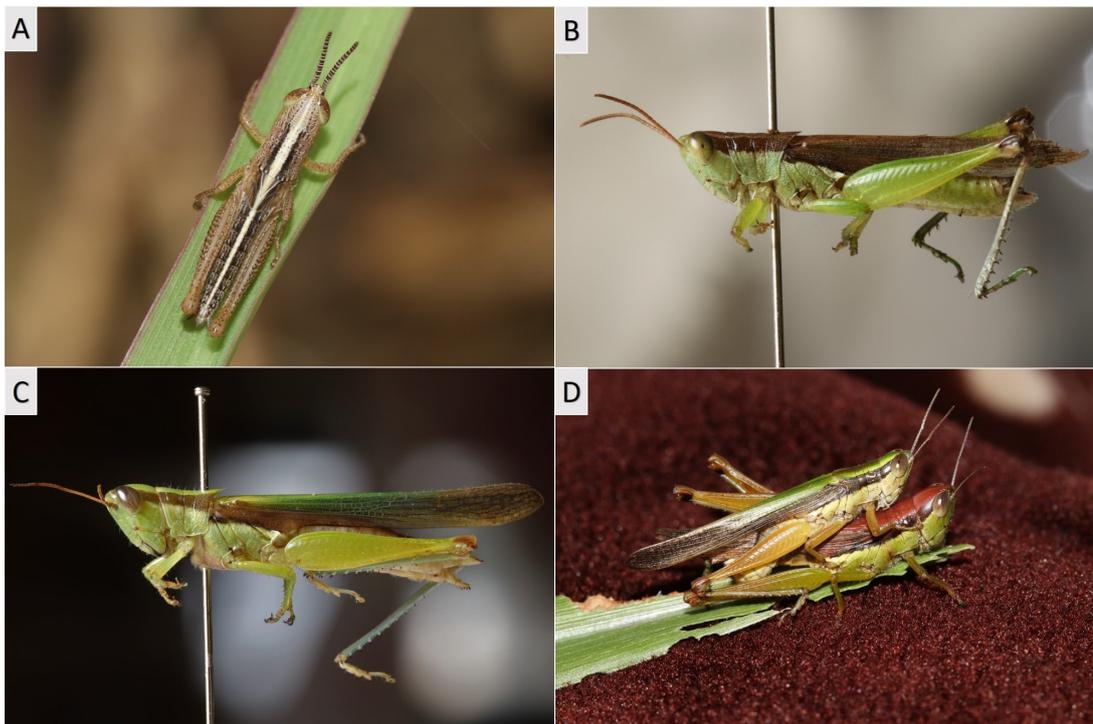


Figure 26. *Oxya hyla*. **A.** Nymph; **B.** Male; **C.** Female; **D.** Mating pair.

Distribution in Nepal. Yenuwa, Tp.; Lelep, Tp.; Dovan, Tp.; Tellok, Tp. (Chopard & Dreux, 1966), Eastern Pokhara, Ks.; Modi khola, Thak valley, Ks.; between Ghanpokhara and Kapurgaon, Lm.; east of Charaudi, Dh.; Jugedi, Ch. (Ingrisch, 1987), Manahari khola, Beluwa, Ma.; Jhuwani, Rapti valley, Ch.; Jiri, Do.; Jubing, So. (Ingrisch, 1990), Jiri to Shivalaya, Do. (Ingrisch, 2001), Kathmandu, Ka.; Betrawati to Pairebeshi, Ra.; Pairebeshi, Ra.; Diyale, Ra.; Mailungkhola, Ra.; near Betrawoti river, Ra. (Ingrisch & Garai, 2001), Tumlingtar, Airport, Sa.; Tp. to Mitlung, Tp.; Ganna, riverbanks of Chameliya Khola, Dr. (Ingrisch, 2006).

Note. The genus is spelt as *Spatosternum* in Ingrisch (1987). The locality Chameliya Khola is spelt as Chamliya Khola in the original text.

Superfamily Pyrgomorphoidea Brunner von Wattenwyl, 1874

Family Pyrgomorphidae Brunner von Wattenwyl, 1874

Subfamily Pyrgomorphinae Brunner von Wattenwyl, 1874

Tribe Atractomorphini Bolívar, 1905

Genus *Atractomorpha* Saussure, 1862

Atractomorpha crenulata (Fabricius, 1793) (Fig. 28)

New records. 10♂, 15♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Bhattar, Agriculture Science Center; 27.80830°N, 84.71896°E; 460 ± 5 m a.s.l; Mar.–Nov. 2021; M. Subedi leg.; Agricultural fields; ICAG (1♂, 1♀).

Distribution in Nepal. Tellok, Tp. (Chopard & Dreux, 1966), Kabre to Kirantichhap to Charange Khola, Do.; Pheda Khola, Do. (Bey-Bienko, 1968), Aadhabhar, Br. (Kevan, 1975), Dumre to Turture, Ta.; Turture, Ta. to Phaleksanghu, Lm.; Bhulbhule to Syange, Lm.; Sarangkot, Ks.; Tiger Tops to Tharu village, Ch.; near Nagarkot, Bh. (Balderson & Yin, 1987), Manahari khola, Beluwa, Ma.; Jhuwani, Rapti valley, Ch. (Ingrisch, 1990), Diyale, Ra.; Betrawati, Ra. (Ingrisch & Garai, 2001), Jumla, Ju.; Ganna to Latinath, Dr. (Ingrisch, 2006).

Notes on variability. Three different color forms were observed: (i) completely brown (Fig. 28B), (ii) pinkish abdominal segments with other body parts completely green in color (Fig. 28C), (iii) whole body pinkish-green in color (Fig. 28D).

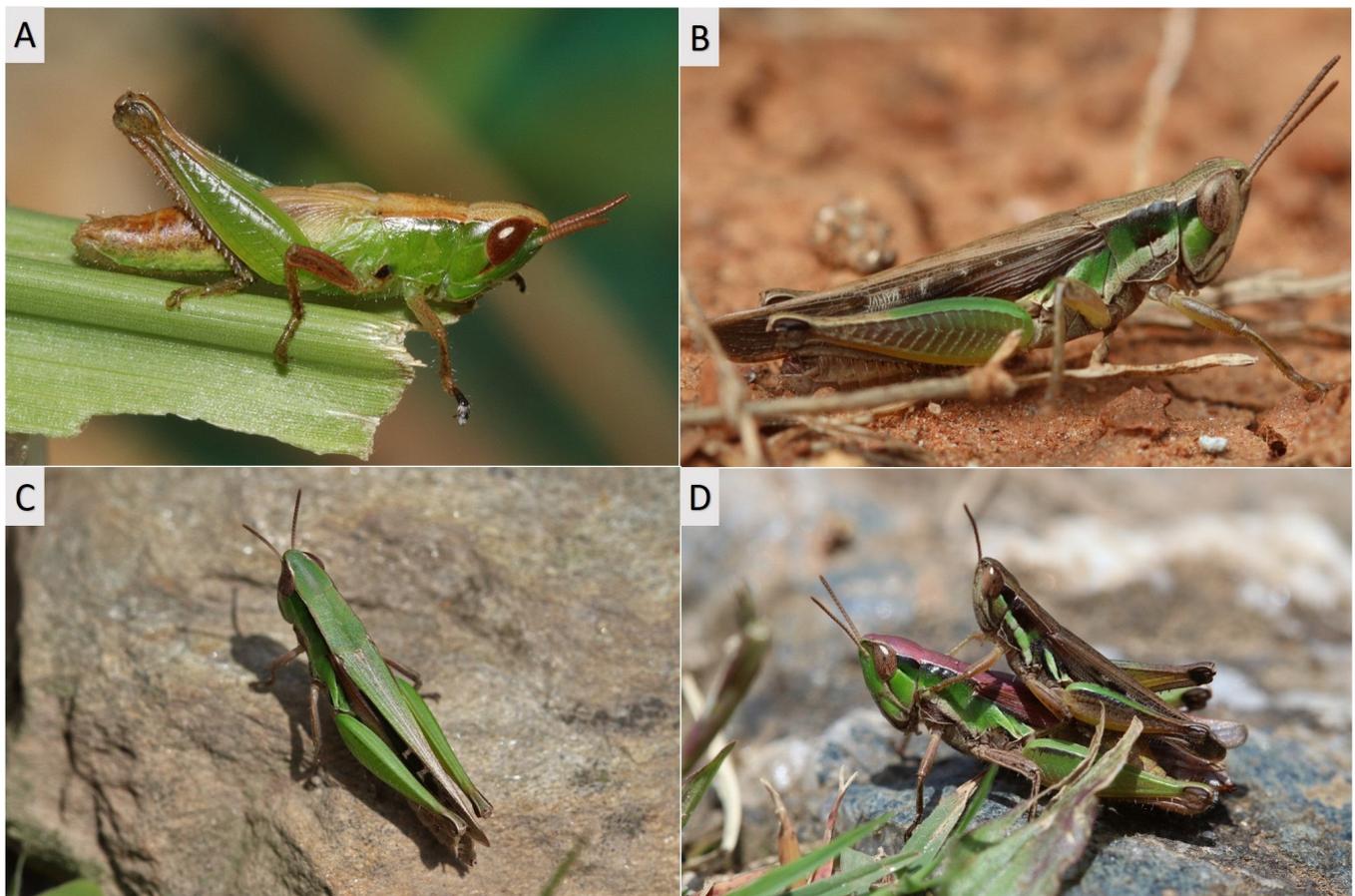


Figure 27. *Spathosternum prasiniferum*. **A.** Nymph; **B.** Male; **C.** Female; **D.** Mating pair.

Tribe Chrotogonini Bolívar, 1884

Genus *Chrotogonus* Serville, 1838

Subgenus *Chrotogonus* Serville, 1838

Chrotogonus (Chrotogonus) trachypterus (Blanchard, 1836) (Fig. 29)

New records. 8♂, 9♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Bhattar, Agriculture Science Center; 27.80830°N, 84.71896°E; 460 ± 5 m a.s.l.; Mar.–Nov. 2020; M. Subedi leg.; Agricultural fields; ICAG (1♂, 1♀) | 15♂, 15♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Shree Netrajyoti Basic School; 27.80817°N, 84.71966°E; 465 ± 5 m a.s.l.; Mar.–Nov. 2021; M. Subedi leg.; Open grounds.

Distribution in Nepal. Tamor bridge, Dn. (Chopard & Dreux, 1966), Cha Khola valley, Kv.; Chaubas, Kv. (Bey-Bienko, 1968), mentioned without any specific localities (Kevan et al., 1974), Turture, Ta. to Phaleksanghu, Lm.; Tiger Tops to Tharu Village, Ch.; near Nagarkot, Bh. (Balderson & Yin, 1987), Nalma to Midim khola, Lm.; north of Rupa Lake, Ks.; Kirtipur, Ka. (Ingrisch, 1987), Jhuwani, Rapti valley, Ch.; Bhaise Dobhan, Ma.; Indrawati khola, Jaretar, Kv. (Ingrisch, 1990), Betrawoti, Ra. (Ingrisch & Garai, 2001), Bagmati River, near Gokarna Forest Park, Ka.; Thamel, Hotel Norbhu Linkha, Ka.; 15 km N Da., Bharaina, Da.; 20 km N Da., Da.; 40 km N Nepalgunj, Babai River, Bardiya; Da., Da.; Nepalgunj, Hotel Batika, Bn.; 5 km N Dillikot, Kl.; Dillikot, Kl. (Ingrisch, 2006).

Note. The locality Jaretar is spelt as Jaraetar, while Babai River is mentioned under Surkhet district in the respective original texts.

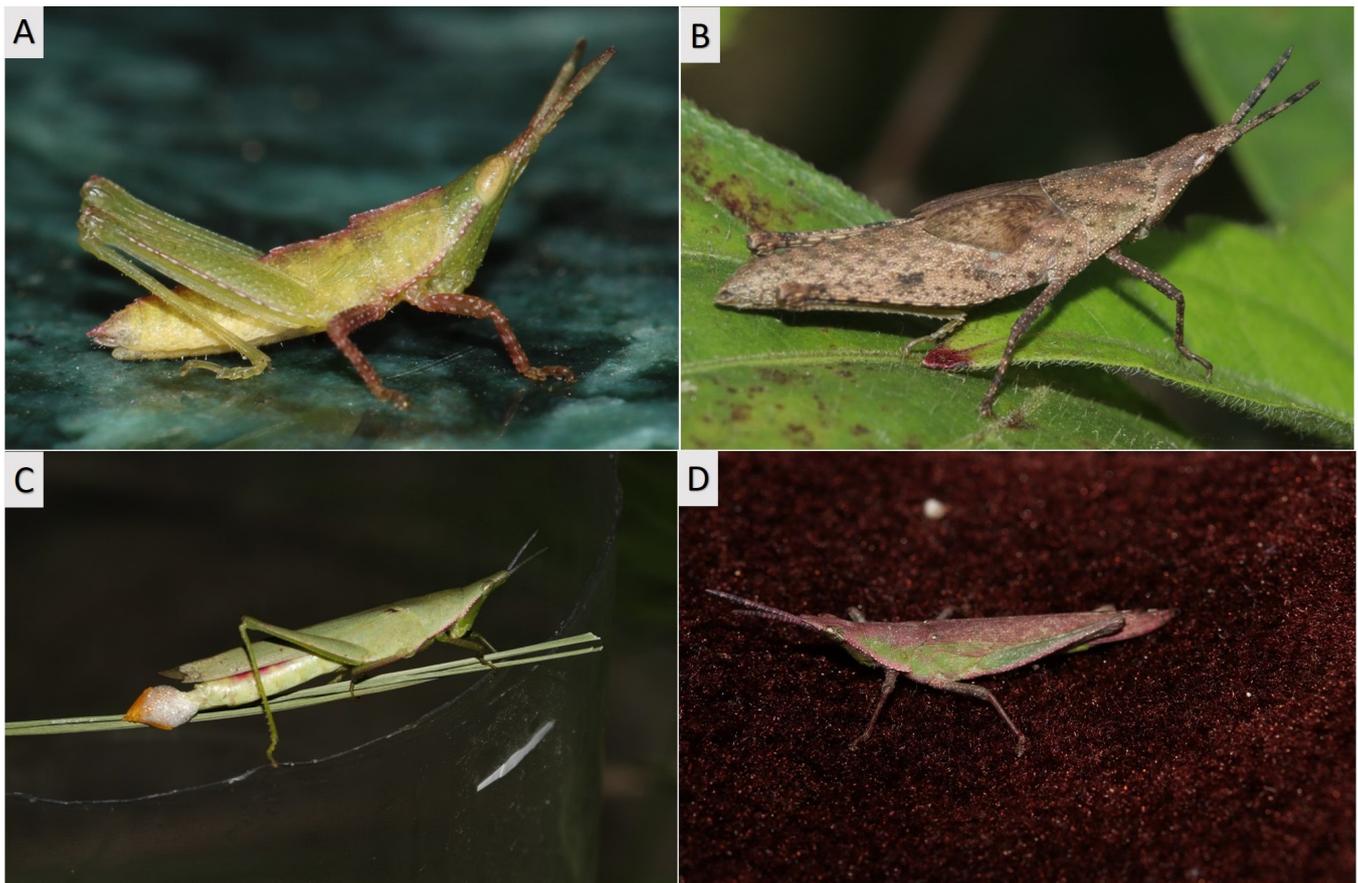


Figure 28. *Atractomorpha crenulata*. **A-B.** Nymphs; **C.** Female laying eggs in captivity; **D.** Male.

Tribe Tagastini Bolívar, 1905

Genus *Tagasta* Bolívar, 1905

Tagasta indica Bolívar, 1905 (Fig. 30)

New records. 20♂, 18♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Dadabari; 27.80914°N, 84.72100°E; 490 ± 5 m a.s.l.; Mar.–Sep. 2021; M. Subedi leg.

Distribution in Nepal. Tiger Tops to Tharu Village, Ch. (Balderson & Yin, 1987), Eastern Pokhara, Ks.; Forest North of Thuloswanra, Ks.; east of Charaudi, Dh. (Ingrisch, 1987).

Tribe Taphronotini Bolívar, 1904

Subtribe Aularchina Kevan & Akbar, 1964

Genus *Aularches* Stål, 1873

Aularches miliaris (Linnaeus, 1758) (Fig. 31)

New records. 15 nymphs; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Dadabari; 27.80914°N, 84.72100°E; 490 ± 5 m a.s.l.; 14 Jun. 2021; M. Subedi leg.; on Napier grass | 1♀; Nepal, Gandaki Province, Gorkha district, Gandaki Rural Municipality, Ghyalchok, Bhattar, Agriculture Science Center; 27.80830°N, 84.71896°E; 460 ± 5 m a.s.l.; 09 Jul. 2020; M. Subedi leg.; on Napier grass.

Distribution in Nepal. Sherpakharka, Ra.; Diyale, Ra.; Mailungkhola, Ra. (Ingrisch & Garai, 2001), mentioned without locality (Kevan et al., 1974), Bagmati River, Ka.; Mahendranagar near Daijee, Chaudhara river, Kp. (Ingrisch, 2006).

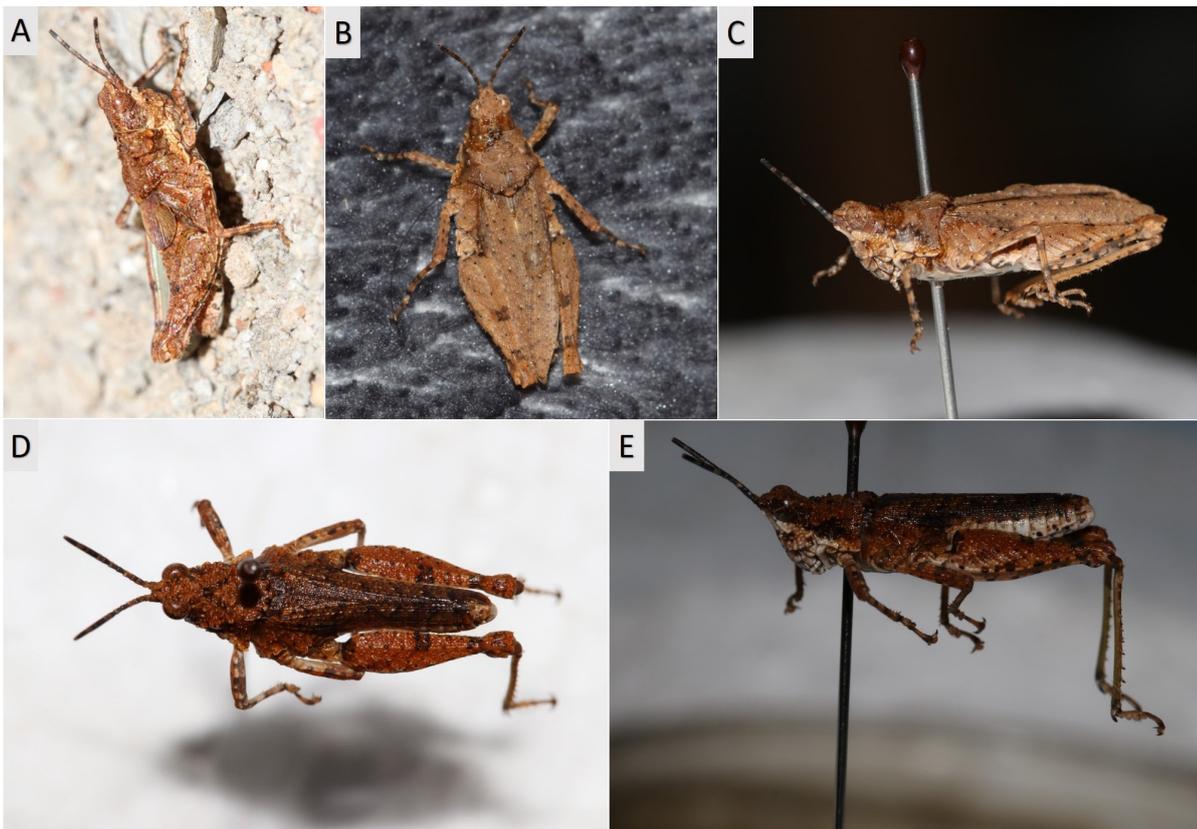


Figure 29. *Chrotogonus (Chrotogonus) trachypterus*. **A.** Nymph; **B-C.** Female; **D-E.** Male.

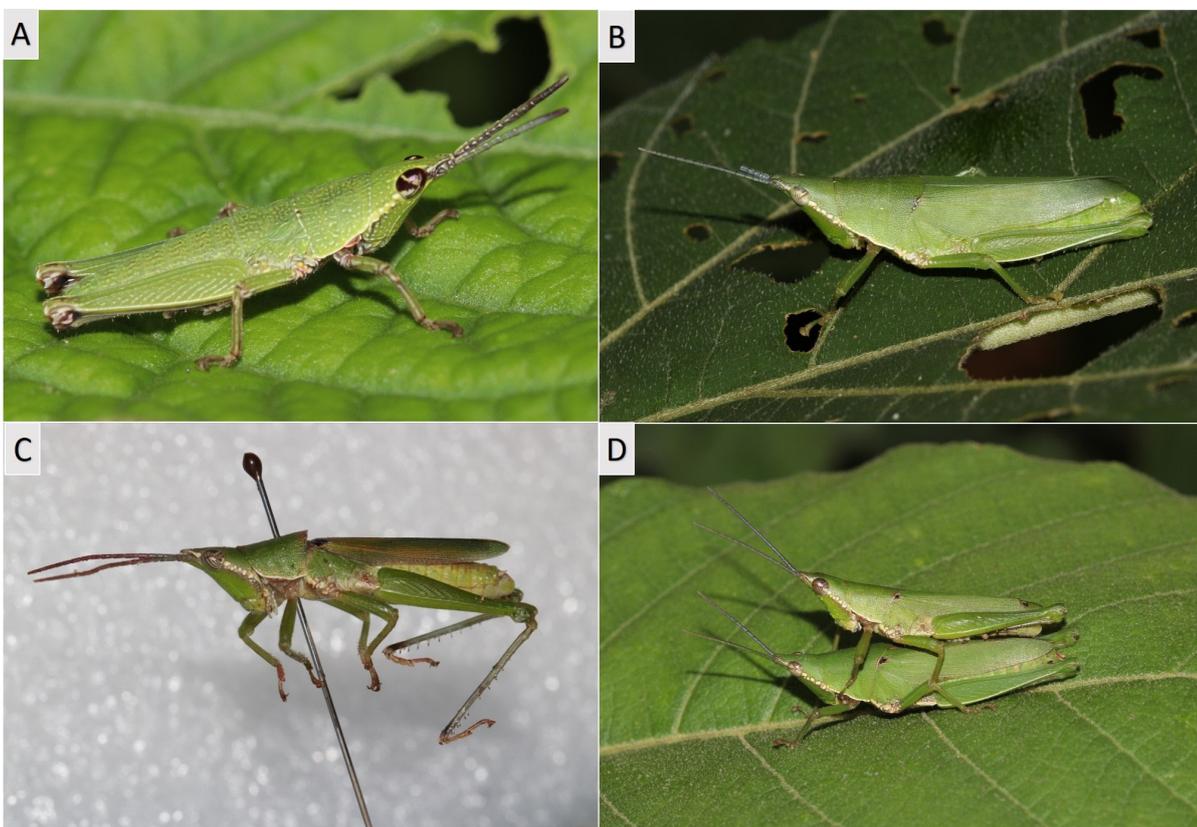


Figure 30. *Tagasta indica*. **A.** Nymph; **B.** Female; **C.** Male; **D.** Mating pair.

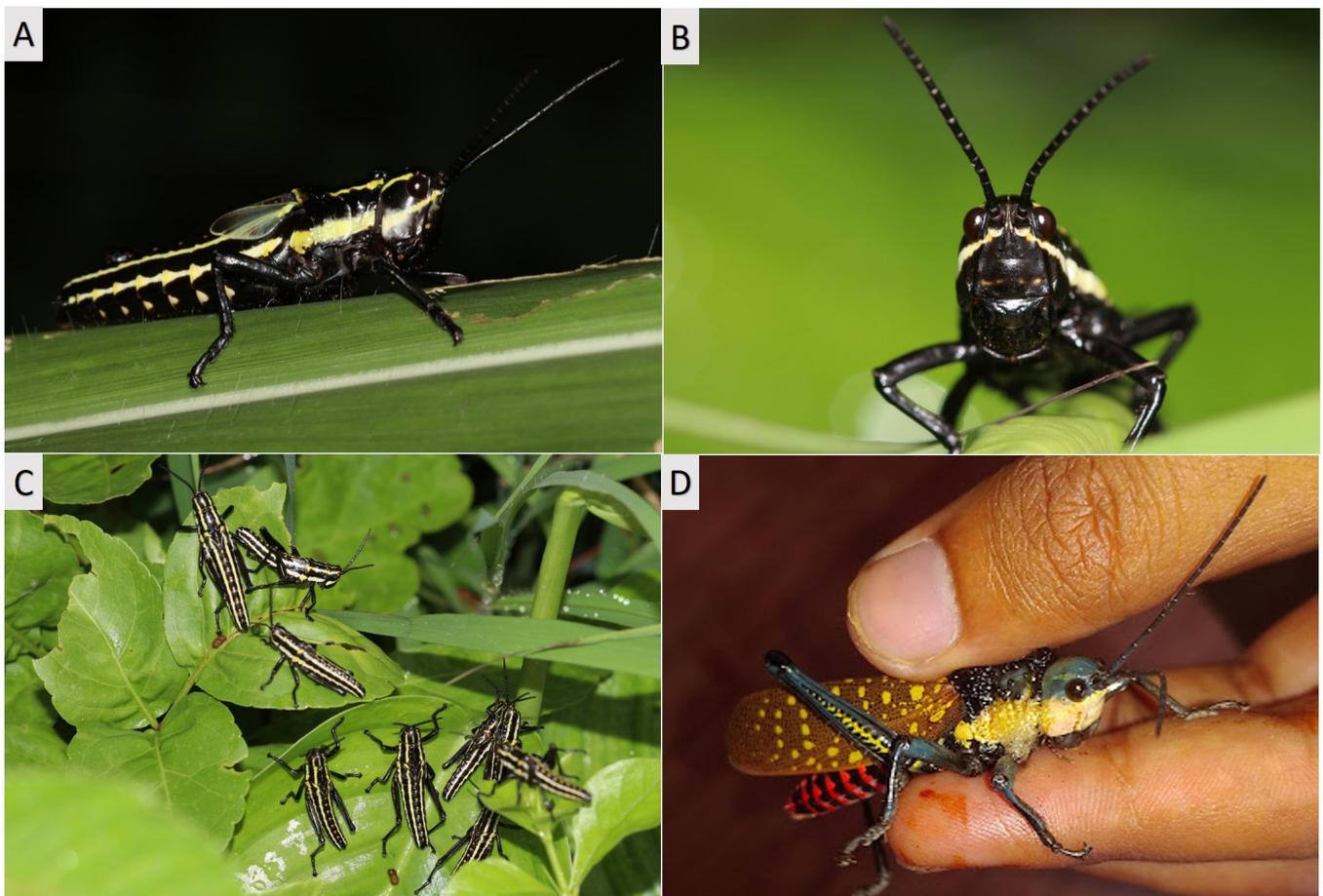


Figure 31. *Aularches miliaris*. **A–B.** Nymph; **C.** Nymphs in group; **D.** Adult female with foam released from the thorax in response to the capture by hand.

DISCUSSION

This work presents an account of grasshoppers (Acrididae & Pyrgomorphidae) from the previously unexplored subtropical regions of Ghyalchok, Gorkha, Nepal. A total of 29 species with 4 new records for Nepal have been provided along with their photographic plates. As most of the research work on Nepali Orthoptera have been carried out by foreign researchers, there are some errors in the name of the localities in most of the publications. The checklist prepared by local researchers e.g. Pudasaini & Dhital (2022), also misses out on the complete distribution records. An attempt has been made to correct the spellings of the localities, and provide the revised distribution along with some new records.

The genus *Bibracte* Ramme, 1941 (Acrididae, Catantopinae) comprises 14 species distributed across South and South-East Asia and Africa (Madagascar island) (Cigliano et al., 2023). This genus was not previously reported from Nepal. The species was compared with, and agrees with, the images of the holotype of *B. burmana burmana* from OSF (Cigliano et al., 2023) and the original description (Ramme, 1941). The genus *Caryanda* comprises 98 species distributed across Asia and Africa (Cigliano et al., 2023). This genus has not been previously reported from Nepal. The species was compared with the images of the holotype from OSF and also agrees with the original description (Kirby, 1914). The genus *Gonista* comprises 12 species distributed across Asia and Africa (Cigliano et al., 2023). This genus was not previously reported from Nepal. The morphological characters of the species agree with the description of *G. bicolor* (Haan, 1842). It differs from the closely related *Gelastorhinus* in having the hind knees produced into short and equal spines (Willemse, 1951). However, the live individuals have a posture commonly found in *Gelastorhinus* as stated by Tinkham (1936): position of the legs that are held

in rest, outward and upward at about a 45-degree angle to the body, while in *Gonista*, the legs are closely pressed along the sides of the abdomen. The individuals were observed for an hour to confirm if this position was a short-term response to prepare the escape against the approach of a predator, but they were never seen to hold their legs together. So, this posture could be a development of a long-term process of adaptation to the micro-climate or environment, unlike the individuals of the same species from other areas. The genus *Phlaeoba* comprises 24 species distributed across Africa and Asia (Cigliano et al., 2023). Among them, 3 species are reported from Nepal viz., *Phlaeoba infumata* (Bey-Bienko, 1968; Chopard & Dreux, 1966; Ingrisch, 1987, 1990, 2006; Ingrisch & Garai, 2001), *Phlaeoba sikkimensis* Brunner von wattenwyl, 1893 (Bey-Bienko, 1968; Ingrisch, 1987, 1990) and *Phlaeoba tenebrosa* Walker, 1871 (Balderson & Yin, 1987). The species *P. antennata*, recorded for the first time from Nepal in this study, has two sub-species of which *P. antennata antennata* is widely distributed in the Indian subcontinent region while *P. antennata malayensis* Bolívar, 1914 is distributed only in Malaysia (Cigliano et al., 2023). *P. antennata antennata* differs from *P. tenebrosa* in having distinct lateral carina, the latter with the lateral carina of pronotum indistinct or coarsely indicated or absent. From *P. infumata*, it differs by the yellowish end of antennae and the hind tibia being sordid blue or reddish, instead of having unicolorous antennae and the hind tibiae brownish testaceous. While from *P. sikkimensis*, *P. antennata antennata* differs in having the male sub-genital plate with obtuse end instead of with tapering end.

Different color forms were observed in some species: *Acrida exaltata*, *Atractomorpha crenulata* and *Gastrimargus africanus*. The green-brown color polymorphism is one of the widespread and commonly occurring phenomena in grasshoppers (Rowell, 1972). While most of the species were polyphagous, two species were found to be monophagous: *Apalacris varicornis* feeding only on *Blumea balsamifera*, and *Mesopsis cylindricus* feeding on *Saccharum spontaneum*. Grasshoppers are known to be monophagous, oligophagous or polyphagous (Chapman, 1990). Cannibalism was observed in *Stenocatantops splendens* reared in plastic jars. It was observed that grasshoppers engage in cannibalism both in the wild and in captivity, and that this behavior may be triggered by factors such as dry conditions, low-nutrient food, or high population density (Lavigne & Pfadt, 1964; Rizvi, 1967; Uvarov, 1977). Two genera *Peripolus* and *Chorthippus* were previously known from higher elevations. This is the lowest occurrence of *Peripolus pedarius*, the previous lowest altitude being 716 m a.s.l (Balderson & Yin, 1987) while the highest being 2300 m a.s.l. (Ingrisch, 2006). Likewise, *Chorthippus* is usually known from higher altitude with reports from as high as 3815 m a.s.l., while the lowest altitude was 853 m a.s.l. (Balderson & Yin, 1987). This is the lowest elevation reported for *Chorthippus* in Nepal.

This work covers only two families of the suborder Caelifera. The region is still unexplored in terms of other families and the suborder Ensifera as a whole. So, the prospects remain for further research and exploration of the region to have a better understanding of the biodiversity of the order Orthoptera. This could involve the conduction of additional field studies and surveys to document the Orthoptera fauna, as well as genetic and molecular analyses to establish a better understanding of their evolutionary relationships and ecological roles. Such research could have significant implications for our understanding of Orthoptera diversity and their contributions to the local ecosystems, thereby concentrating the efforts for their conservation

AUTHOR'S CONTRIBUTION

The authors confirm their contribution in the paper as follows: M. Subedi: Conducting the field works and taking photographs; M. Subedi and D. Bhaskar: Writing and revising the manuscript. The authors read and approved the final version of the manuscript

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AVAILABILITY OF DATA AND MATERIAL

The specimens listed in this study are deposited in Insect Collection of Agricultural Science Center, Ghyalchok, Gorkha, Nepal (ICAG) and are available from the curator, upon request.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

CONSENT FOR PUBLICATION

Not applicable.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this paper.

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ملخ‌های (Orthoptera, Acrididae & Pyrgomorphidae) گیالچوک، گورخا نیپال و چهار گزارش جدید گونه

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چکیده: در این مقاله، فهرست ملخ‌های دو خانواده از منطقه گیالچوک، ناحیه گورخا با چهار گونه جدید برای نیپال ارائه شد. این فهرست با هدف گردآوری اطلاعات اولیه درباره تنوع ملخ‌ها در آن منطقه ارائه شده است. با ارائه اطلاعات دقیق درباره تمام گونه‌های ثبت شده همراه با تصاویر مختلف از هر گونه، کار حاضر به شناخت بهتر ملخ‌های منطقه گیالچوک، گورخا در نیپال کمک خواهد کرد. همچنین این مطالعه به تحقیقات متمرکز بر بازنگری تنوع و انتشار ملخ‌ها در نیپال کمک خواهد کرد. طی سال‌های ۲۰۱۹-۲۰۲۲، در ۱۳ منطقه مختلف از گیالچوک اقدام به نمونه‌برداری شد و طی آن پس از شمارش مستقیم، نمونه‌ها با استفاده از تور و در مواردی که ممکن بود با دست جمع‌آوری شدند. به طور کلی ۲۹ گونه از ملخ‌ها در این منطقه شناسایی شدند که ۲۶ گونه به خانواده Acrididae و ۳ گونه به خانواده Pyrgomorphidae تعلق دارند. چهار گونه ملخ شامل *Phlaeoba antennata antennata* (1914) و *Gonista bicolor* (Haan, 1942) برای اولین بار از نیپال ثبت شدند. *Caryanda cachara* (Kirby, 1893)، *Bibracte burmana burmana* (Ramme, 1941) و *Brunner von Wattenwyl*, 1893

واژگان کلیدی: Caelifera، چکلیست، انتشار، گانداکی، هیمالیا، مناطق زیرگرمسیر، تاکسونومی